



## Repair Manual

- Golf Variant 2007 ➤
- Golf Variant 2010 ➤
- Jetta 2005 ➤

### Communication

Edition 08.2013





## List of Workshop Manual Repair GroupsList of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

### Repair Group

91 - Communication



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



## Contents

<b>91 - Communication</b>	<b>1</b>
<b>1 General Information</b>	<b>2</b>
1.1 Amplifier R12	2
1.2 Antenna Systems	3
1.3 Antenna Systems	3
1.4 CD Changer R41	4
1.5 Cellular Telephone and Two-Way Radios, Operating Instructions	5
1.6 Compass System	7
1.7 External Audio Source Connection R199	7
1.8 External Audio Source Connection 2 R231 (USB Port)	8
1.9 Interference Suppression Measures	9
1.10 iPod Baseplate R192	9
1.11 Multifunction Steering Wheel	10
1.12 Multimedia System Control Module J650	10
1.13 Rearview Camera System	11
1.14 Repairing Antenna Wires	11
1.15 Radios	12
1.16 Radio Navigation Systems	33
1.17 Speakers	56
1.18 Satellite Radio R146	56
1.19 Telephone Systems	57
1.20 USB Connection Baseplate R193	58
1.21 Vehicle GPS	59
<b>2 Description and Operation</b>	<b>61</b>
2.1 Amplifier R12 Connectors	61
2.2 Antenna Systems	65
2.3 Antenna Systems	68
2.4 CD Changer R41 Connector	72
2.5 Cellular Telephone and Two-Way Radios Battery/Radio/Fuses/Wiring Harnesses Overview	72
2.6 Low Entry Radio	74
2.7 External Audio Source R199 Connector	76
2.8 External Audio Source Connection 2 R231 (USB Port), Connector	76
2.9 iPod Baseplate R192	77
2.10 MFD 2 Navigation Radio	78
2.11 Multimedia System Control Module J650 Overview	84
2.12 Rearview Camera System Component Location	87
2.13 Radio Premium 7	88
2.14 RCD 210	91
2.15 RCD 300	95
2.16 RCD 030+	98
2.17 RCD 300+	102
2.18 RCD 310	105
2.19 Radio Premium 8	110
2.20 RCD 500	116
2.21 RNS 300	119
2.22 RNS 310	121
2.23 RNS 315	125
2.24 RNS 315+	128
2.25 RCD 510	133
2.26 RCD 510+	138
2.27 RNS 510	141
2.28 Satellite Radio R146 Connectors	147



2.29	Speaker Systems Overviews	147
2.30	Telephone System Overviews	154
2.31	USB Connection Baseplate R193 Connector	162
<b>3</b>	<b>Specifications</b>	<b>163</b>
3.1	Fastener Tightening Specifications	163
3.2	Cellular Telephone and Two-Way Radios, Transmitted Output, Antenna Installation Locations	163
<b>4</b>	<b>Diagnosis and Testing</b>	<b>164</b>
4.1	Amplifier R12 , Reading Measured Values	164
4.2	CD Changer R41 , Checking	165
4.3	Low Entry Radio Components, Adapting	165
4.4	iPod Baseplate R192 , Troubleshooting	165
4.5	Multifunction Steering Wheel Functions, Adapting	166
4.6	Multimedia System Control Module J650 , Coding	166
4.7	Multimedia System Control Module J650, Output Diagnostic Test	167
4.8	Premium 7 Components, Adapting	167
4.9	RCD 210, Adapting	167
4.10	RCD 300, Adapting	168
4.11	RCD 030+, Adapting	168
4.12	RCD 300+, Adapting	168
4.13	RCD-310 Entry Components, Adapting	168
4.14	Premium 8 Components, Adapting	169
4.15	RCD 500, Adapting	169
4.16	RNS 300, Adapting	169
4.17	RNS 310, Adapting	170
4.18	RNS 315, Adapting	170
4.19	RNS 315+, Adapting	170
4.20	RCD 510 Functions, Adapting	170
4.21	RNS MFD 2 DVD, Adapting	171
4.22	RCD 510+, Adapting	171
4.23	RNS 510, Adapting	171
4.24	Satellite Radio R146 , Activating	172
4.25	USB Connection Baseplate R193 , Troubleshooting	172
<b>5</b>	<b>Removal and Installation</b>	<b>173</b>
5.1	Amplifier R12	173
5.2	Antenna Systems	174
5.3	Antenna Systems	180
5.4	CD Changer R41	182
5.5	Compass Magnetic Field Sensor G197	183
5.6	Compass Magnetic Field Sensor G197	183
5.7	External Audio Source Connection R199	184
5.8	External Audio Source Connection 2 R231 USB Port	186
5.9	Frequency Filter	188
5.10	iPod Baseplate R192 Adapter	189
5.11	iPod Baseplate R192	190
5.12	Multifunction Steering Wheel Components	191
5.13	Multimedia System Control Module J650	193
5.14	Rearview Camera R189	194
5.15	Radios	195
5.16	Radio/Navigation Display Control Module J503	214
5.17	Satellite Radio R146	230
5.18	Satellite Radio R146	231
5.19	Speakers	232
5.20	Telephone System Components	236
5.21	USB Connection Baseplate R193	240
5.22	Vehicle GPS Control Module	241



6      **Special Tools** ..... 243







## 91 – Communication





## 1 General Information

⇒ ["1.1 Amplifier R12", page 2](#)

Sedan ⇒ ["1.2 Antenna Systems", page 3](#)

Wagon ⇒ ["1.3 Antenna Systems", page 3](#)

⇒ ["1.4 CD Changer R41", page 4](#)

⇒ ["1.5 Cellular Telephone and Two-Way Radios, Operating Instructions", page 5](#)

⇒ ["1.6 Compass System", page 7](#)

⇒ ["1.7 External Audio Source Connection R199", page 7](#)

⇒ ["1.8 External Audio Source Connection 2 R231 \(USB Port\)", page 8](#)

⇒ ["1.9 Interference Suppression Measures", page 9](#)

⇒ ["1.10 iPod Baseplate R192", page 9](#)

⇒ ["1.11 Multifunction Steering Wheel", page 10](#)

⇒ ["1.12 Multimedia System Control Module J650", page 10](#)

⇒ ["1.13 Rearview Camera System", page 11](#)

⇒ ["1.14 Repairing Antenna Wires", page 11](#)

⇒ ["1.15 Radios", page 12](#)

⇒ ["1.16 Radio Navigation Systems", page 33](#)

⇒ ["1.17 Speakers", page 56](#)

⇒ ["1.18 Satellite Radio R146", page 56](#)

⇒ ["1.19 Telephone Systems", page 57](#)

⇒ ["1.20 USB Connection Baseplate R193", page 58](#)

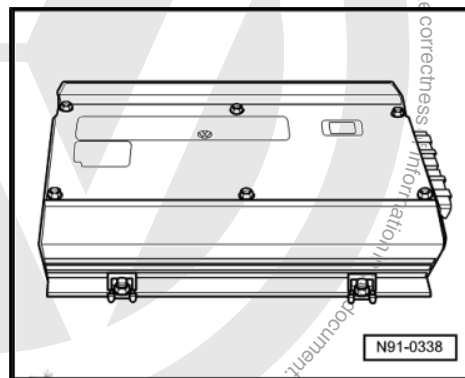
⇒ ["1.21 Vehicle GPS", page 59](#)

### 1.1 Amplifier -R12-



#### Note

- ◆ *Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.*
- ◆ *When performing servicing or Fault Finding, use the Vehicle Diagnostic Tester.*
- ◆ *After connecting the Battery -A-, check all the vehicle accessories (radio, clock, convenience systems). Refer to ⇒ Electrical Equipment; Rep. Gr. 27; Removal and Installation and to the Owner's Manual.*



#### Amplifier -R12-

The Amplifier -R12- enhances the sound of the radio/RNS.

The speaker outputs from the radio/RNS control the signal inputs to the Amplifier -R12-.

The Amplifier -R12- is installed under the left front seat.

Use the Vehicle Diagnostic Tester to perform "Guided Fault Finding".





## 1.2 Antenna Systems

The antenna system consists of the following parts:

- ◆ Antenna -R11- / Radio Antenna 2 -R93- in the rear window
- ◆ FM Frequency Filter In Negative Wire -R178- / FM Frequency Filter In Positive Wire -R179- on the C-pillars.
- ◆ Right Antenna Module -R109- on the rear window
- ◆ Satellite Antenna -R170- , Roof antenna
- ◆ GPS Antenna -R50- on the rear window
- ◆ Telephone Antenna -R65- on the rear window

The antenna system with diversity function serves to improve and optimize the reception quality in the vehicle. It is not on the Low Entry, RCD 210 and RNS 300.



### Note

- ◆ *Familiarity with the function and operation is essential in the event of customer concerns. Refer to owner's manual.*
- ◆ *After connecting the battery, check all the vehicle accessories, (radio, the clock, the convenience systems). Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and the owner's manual.*
- ◆ *If a magnetic antenna is mounted on the roof, the compass module could malfunction due to interference from the magnet or because the roof becomes magnetized. There may be issues with an incorrect compass display if a magnetic antenna was used.*

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

## 1.3 Antenna Systems

The antenna on the Wagon are integrated in the rear side windows and in the roof antenna.

The antenna system consists of the following parts:

- ◆ Antenna -R11- (AM/FM) in the roof antenna or in the right rear side window, through MY 2009
- ◆ Antenna -R11- (AM/FM) in the right rear side window, from MY 2010
- ◆ Radio Antenna 2 -R93- (FM2) in the left rear side window, through MY 2009
- ◆ Radio Antenna 2 -R93- (FM2/optional DAB) in the left rear side window, from MY 2010
- ◆ Antenna Amplifier -R24- (AM/FM) on the right rear side window, through MY 2009
- ◆ Antenna Amplifier -R24- (AM/FM) on the right rear side window, from MY 2010





- ◆ Antenna Amplifier 2 -R111- (FM2) in the left rear side window, through MY 2009
- ◆ Antenna Amplifier 2 -R111- (FM2/optional DAB) in the left rear side window, from MY 2010
- ◆ Digital Radio Antenna -R183- (DAB) in the roof antenna, through MY 2009
- ◆ Satellite Antenna -R170- (SAT) in the roof antenna, USA only
- ◆ GPS Antenna -R50- (GPS) inside the roof antenna
- ◆ Telephone Antenna -R65- (GSM) inside the roof antenna

The antenna system with diversity function serves to improve and optimize the reception quality in the vehicle. It is not installed with the Low Entry, RCD 210 and RNS 300 radios.

The Vehicle GPS Antenna 1 -R259- (GPS) and Vehicle GPS Antenna 1 -R260- (GSM) are installed on the rear bumper for the vehicle GPS.



#### Note

- ◆ *Familiarity with the function and operation of the radio/RNS (Radio Navigation System) is essential in the event of customer concerns. Refer to Owner's Manual.*
- ◆ *After connecting the Battery -A- , check all the vehicle accessories (radio, clock, convenience systems). Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and to the Owner's Manual.*
- ◆ *If a magnetic antenna is mounted on the roof, the compass module could malfunction due to interference from the magnet or because the roof becomes magnetized. There may be complaints about an incorrect or missing direction display on the compass module if a magnetically adhered antenna was used.*

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

## 1.4 CD Changer -R41-

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The CD Changer -R41- is not faulty if the CD Changer -R41- plays commercially available CDs, but not self-burned CDs. Do not replace CD Changer -R41- for this reason.

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix-CDs" (CDs containing files and audio files)
- ◆ MP3

The Radio -R41- must be coded again if an after-sales CD Changer -R- is installed.

CD Changer -R41-, checking. Refer to  
⇒ ["4.2 CD Changer R41 , Checking", page 165](#)





## 1.5 Cellular Telephone and Two-Way Radios, Operating Instructions

**Cell phones or portable two-way radios may not be operated inside the vehicle without an additional external antenna**

- ◆ Radio remote controls (for example, garage door opener) and wireless units (for example, keyboard or PC mouse) may only be used in the vehicle if the transmitted output is maximum 100 mW.
- ◆ Always follow the information in the operating instructions that come with the cell phone, two-way radio and antenna, including the installation instructions.
- ◆ The device's optimal range will only be reached with an exterior antenna.
- ◆ When telephone and two-way radio systems are installed properly there is no danger to safety systems such as the ABS or the airbag. A prerequisite is however that there has been no intervention in their installations. Parallel wiring to such systems must be avoided.
- ◆ Excessively high electromagnetic fields can arise if mobile telephones and radio devices, with or without an incorrectly installed exterior antenna, are used. In such a case, damage to health and interference with vehicle electronics cannot be ruled out.

### **Radios/Telephones with a Transmitted Output Above 10 Watts, Prerequisites**

- The transmitted output on antenna base (see manufacturers designations) must not exceed the relevant maximum values.
- You may not use antenna locations other than those shown in the table.

Transmitted output and antenna fitting locations table, refer to ⇒ ["3.2 Cellular Telephone and Two-Way Radios, Transmitted Output, Antenna Installation Locations", page 163](#) .

### **Performing Repairs**

Disconnect the battery before starting. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

Use the most current wiring diagram. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Trim panels, removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

Follow the manufacturer operating and installation instructions for cellular telephones, two-way radios and antennas. Refer to the operating instructions.

Secure wiring harnesses to cable ties. Wrap connectors with foam to avoid rattling noises.

### **Transmitted Output , Possible Installation Locations**

Volkswagen permits the installation and operation of radio units, as long as the transmitted power on antenna base, listed in table, is not exceeded. For prescribed antenna locations see table.

Limit according to VDE 0848, part 2 (maximum permissible field intensity to protect persons) must be maintained even, if necessary, through reduction of transmission output.

### **Voltage Supply**

When retrofitting a radio, the battery is used for connection the positive and negative wires.



The wiring harness must be manufactured additionally:

- ◆ Power supply (+) red wire with 2.5 mm<sup>2</sup> cross section
- ◆ Power supply (-) brown wire with 2.5 mm<sup>2</sup> cross section

The positive wire must have a fuse which must be located very close to the battery. Attach the fuse panel next to the battery. Both wires must be encased in an insulating hose.

Make suitable connections at battery end.

On unit end proceed as per owner's manual.

The additional wiring harness must be routed separately from vehicle wiring, the distance apart must be at least 10 cm.

Some telephone systems and radios also need terminal 15. In this case, route a black wire, 1.5 mm<sup>2</sup> cross section, from the transmitter/receiver unit to terminal 15a. Refer to Wiring diagrams, Troubleshooting & Component locations.

When installing, make sure wiring connections are not routed parallel to standard wiring.

### Antenna and Wiring

Use a shielded wire between the transmitter and the antenna. Shielding must be grounded to unit and antenna.

At the same time ensure correct and continuous Ground (GND) connection of antenna base wire to vehicle body.

The transmitting system must only be used when shielded to avoid interference in antenna wiring. To ensure the system is tuned and operating correctly it is recommended that an output performance check is carried out.

### Other Auxiliary Installations

Installing other electronic equipment such as a TV or a fax machine or household equipment, such as an electric cooler box, is only permitted if they have the "CE mark" or a "e-mark". This applies only to Europe.

Voltage supply is performed via a separate wiring harness and secured by a fuse.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing antenna wires, refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .



## 1.6 Compass System



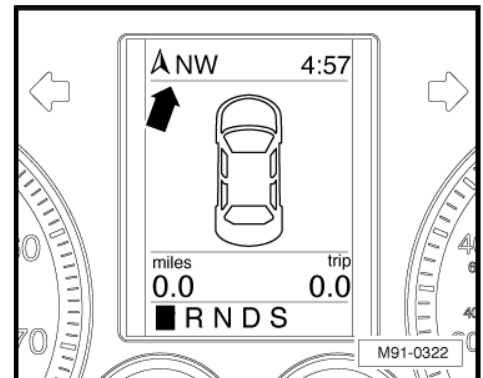
### Note

- ◆ *Before troubleshooting or servicing, the technicians must be familiar with the function and operation of the compass system. Refer to the owner's manual.*
- ◆ *Use the Vehicle Diagnostic Tester to perform "Guided Fault Finding".*
- ◆ *After connecting the battery, check all the vehicle accessories, (radio, the clock, the convenience systems). Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and the owner's manual.*
- ◆ *If a magnetic antenna is mounted on the roof, the compass module could malfunction due to interference from the magnet or because the roof becomes magnetized. There may be issues with an incorrect compass display if a magnetic antenna was used.*

### General Information

The compass includes the display inside the instrument cluster -arrow- and the compass magnetic field sensor -G197- under the rear shelf.

The current compass direction, in which the vehicle is directed, is displayed via the compass display with up to two letters (N = north, NW = northwest). 8 different compass directions can be displayed.



## 1.7 External Audio Source Connection - R199-

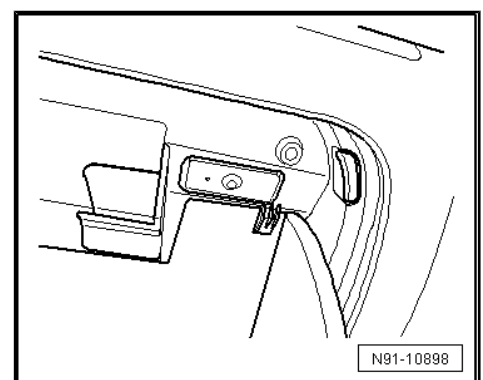


### Note

- ◆ *Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.*
- ◆ *After connecting the Battery -A-, check all the vehicle accessories (radio, clock, convenience systems). Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and to the Owner's Manual.*

### Component location: External Audio Source Connection -R199- through MY 2008

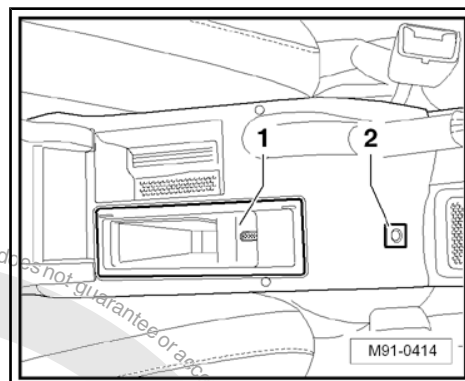
The External Audio Source Connection -R199- is inside the glove compartment in place of the Glove Compartment Lamp -W6- .





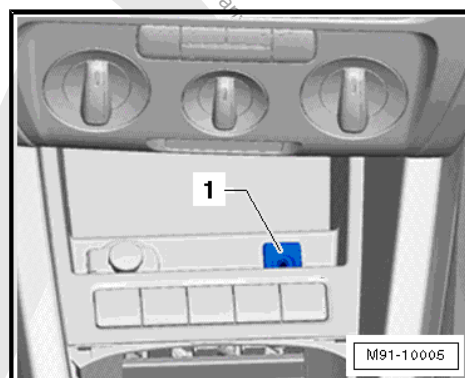
**Component location: External Audio Source Connection -R199-  
-2- from MY 2009**

The External Audio Source Connection -R199- -2- is installed in the center console.



**Component location: External Audio Source Connection -R199-  
-1- from MY 2011**

The External Audio Source Connection -R199- -1- is installed in the center console storage compartment.

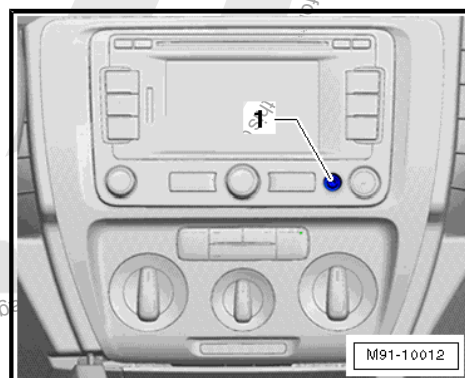


**Component location: External Audio Source Connection -R199-  
-1- on the RNS 310/RNS 315**

The External Audio Source Connection -R199- -1- is integrated in the device. It is located on the right side of the front trim at the bottom.

The External Audio Source Connection -R199- works with the radio/RNS unit that has an "AUX".

Audio signals (generally the headphone output signals) from MP3 players and CD and cassette players can be played in the External Audio Source Connection -R199- through the external audio source connection with the appropriate cord. They can then be played through the vehicle speakers.



For further information, refer to the Owner's Manual.

## 1.8 External Audio Source Connection 2 - R231- (USB Port)



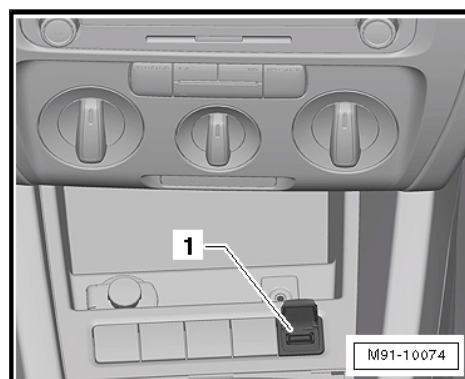
### Note

- ◆ *Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.*
- ◆ *After connecting the Battery -A- , check all the vehicle accessories (radio, clock, convenience systems). Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and to the Owner's Manual.*

**Component location: External Audio Source Connection 2 -R231-  
(USB port) -1-**

External Audio Source Connection 2 -R231- (USB port) -1- is inside the storage compartment in the center console.

For further information, refer to the Owner's Manual.





## 1.9 Interference Suppression Measures

All standard and optional electrical consumers in the vehicle are shielded.

This includes all sensors, actuators and all electrical motors in the vehicle, as well as controllers in control modules that could cause high-frequency interference.

To suppress interference, all electrical parts such as condensers, coils, and diodes are integrated with the electrical components.

Interference suppression components are also built into the connection housings of electrical consumers.

The grounding cables that used to be employed for shielding purposes are no longer used because interference suppression is now done as near as possible to the source of the interference.

## 1.10 iPod Baseplate -R192-



### Note

- ◆ *Make sure the iPod Baseplate -R192- is working correctly if there are customer complaints. Refer to the Operating Instructions.*
- ◆ *After connecting the Battery -A-, check all the vehicle accessories (radio, clock, convenience systems). Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and to the Owner's Manual.*

The iPod Baseplate -R192- can be ordered as an accessory.

There are several versions of the iPod. The iPod Baseplate -R192- is designed for the following iPods:

- ◆ 3rd and 4th generation iPods
- ◆ iPod Mini
- ◆ iPod Photo

When an iPod is inserted into the iPod Baseplate -R192-, the play list will appear in the radio or radio/RNS. The voltage supply for the iPod flows through the iPod Baseplate -R192-.

All iPod audio files can be played through the Sound System. It is not possible to display photographs and ID3 tags. The radio/RNS display simply shows the number of the file (track xx).

The files are transmission to the radio/RNS from the iPod.

### Troubleshooting

The iPod Baseplate -R192- does not have OBD.

For the fault finding procedure, refer to  
⇒ ["4.4 iPod Baseplate R192 , Troubleshooting", page 165](#).





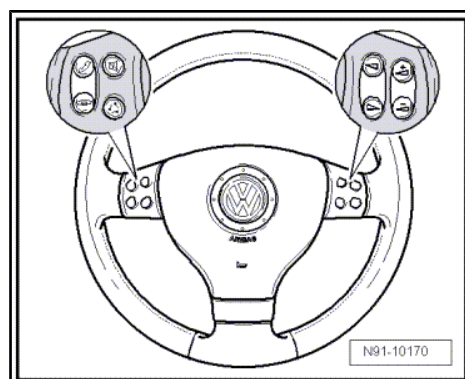
## 1.11 Multifunction Steering Wheel

The multifunction steering wheel makes it possible to control some functions of the Communications System and the cruise control from the steering wheel.

The Multifunction Steering Wheel Control Module -J453- communicates only with the Steering Column Electronics Control Module -J527-. Data commands are processed there once more for further communication.

Multifunction Steering Wheel has On Board Diagnostic (OBD) capabilities.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.



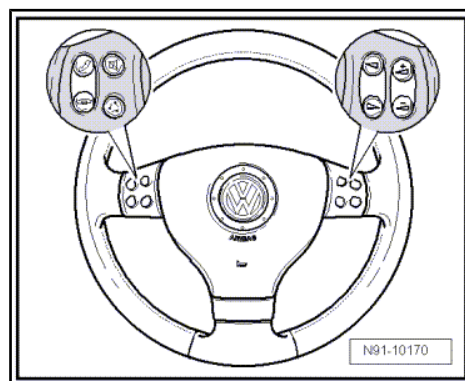
The Multifunction Steering Wheel is made up of the following components:

- ◆ The control unit inside the steering wheel, with two button blocks with integrated electronics arranged on left and right side on steering wheel
- ◆ Multifunction Steering Wheel Control Module -J453-



### Note

- ◆ *Familiarity with the function and operation of the multifunction steering wheel is essential in the event of customer concerns. Refer to Owner's Manual.*
- ◆ *After connecting the Battery -A-, check all the vehicle accessories (radio, clock, convenience systems). Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation and to the Owner's Manual.*



## 1.12 Multimedia System Control Module - J650-

### General Information

Analog audio (via the AUX In input) and digital audio (via the USB or iPod input) can be played on the radio or radio/navigation system via the multimedia system control module. It is also possible to operate a digital device using the radio/radio-navigation system. ID3 TAGs and titles are also displayed on the radio/radio-navigation system display.



### Note

*Since the capability to display the ID3 tags and titles on the radio or radio/navigation system display depends on the quality, refer also to the operating instructions for the radio/radio-navigation system as well as to the Operating Instructions that came with the MP3 player or iPod.*

The multimedia system control module provides an audio input (AUX-In), a USB input and an iPod connection (supply, signal and audio-in) as an interface. A specific adapter cable is used to connect the mobile device to the USB or iPod interface on the multimedia system control module. There is an integrated storage space for the mobile device in the multimedia system control module. It can also charge the device via the USB or iPod connection.





#### Note

*The multimedia system control module can also be installed separately if there is no 1 DIN slot in the vehicle. The customer can access the universal interface (Mitsumi socket) with a Mitsumi extension. The Mitsumi socket must be integrated in the vehicle interior to do this. The maximum length for the Mitsumi extension is 1,500 mm.*

## 1.13 Rearview Camera System

Familiarity with the function and operation of the rearview camera system is needed if there are customer concerns.

### Function:

The rear system assists the driver during back-up driving by providing the driver with an image of the traffic situation behind the vehicle via the monitor of the radio/navigation system. The system is optional equipment.

The system switches itself on by selecting the reverse gear, even when radio/navigation system is switched off.

The rear view camera system consists of the following components:

- ◆ Rearview Camera -R189-
- ◆ Radio/Navigation Display Unit Control Module -J503- (RNS)
- ◆ Steering wheel with Steering Angle Sensor -G85-

It is not permitted to install an auxiliary license plate holder for vehicles with rear view camera system because it would impair the function of the rear view camera system. License plate lights may also be impaired.

Additional information:

- ◆ Refer to Wiring diagrams, Troubleshooting & Component locations
- ◆ Refer to Owner's Manual.

### DTC recognition and display

The rearview camera system has OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

Small calibrations are necessary.

## 1.14 Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing antenna wires, refer to ➤ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .



## 1.15 Radios

⇒ ["1.15.1 Low Entry", page 12](#)

⇒ ["1.15.2 RCD 210", page 13](#)

⇒ ["1.15.3 RCD 300", page 15](#)

Wagon ⇒ ["1.15.4 RCD 030+", page 18](#)

Wagon ⇒ ["1.15.5 RCD 300+", page 20](#)

⇒ ["1.15.6 RCD 310", page 22](#)

⇒ ["1.15.7 RCD 500", page 24](#)

⇒ ["1.15.8 Premium 7", page 27](#)

⇒ ["1.15.9 Premium 8", page 29](#)

### 1.15.1 Low Entry

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The Low Entry Sound System has the following features:

- ◆ Monochrome display
- ◆ FM tuner
- ◆ CD player
- ◆ UHV Low
- ◆ 4 speaker channels, 20 W each

The CD player integrated inside the radio Radio -R- plays the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The Low Entry is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

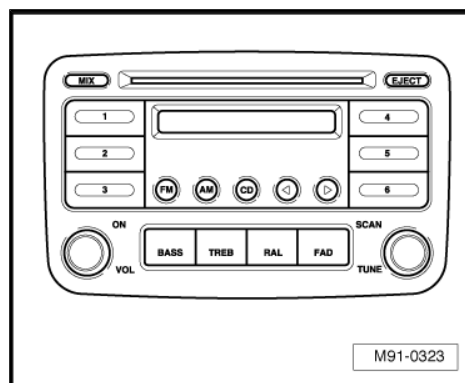
#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

#### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.





After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the anti-theft system has been activated for the first time and that the Radio -R- is reconnected in the same vehicle.

If the Radio -R- is replaced, then the radio code must be entered.

The Radio -R- has been locked by the anti-theft protection. After switching on the Radio -R- "SAFE" and "1000" will appear in the display.

#### Electronic Anti-Theft Protection, Deactivating:

Reactivating a locked Radio -R- is only possible by entering correct radio code number for anti-theft protection.




#### Note

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

→ Get the radio code.

– Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

- Enter the radio code using the radio station buttons 1 through 4. Use the first radio station button to enter the first digit of the radio code. Use the second radio station button to enter the second digit.
- Press the  and hold it until the electronic anti-theft protection is activated. This is indicated by a short signal sound.

If the radio code has been entered correctly into Radio -R- , a radio frequency appears on the display.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.

### 1.15.2 RCD 210

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 210 radio has the following:

- ◆ Monochrome display
- ◆ FM tuner
- ◆ CD player
- ◆ UHV Low
- ◆ 2 or 4 speaker channel, 20 W each
- ◆ Connection for External Audio Source Connection -R199-



- ◆ Connection for an external CD Changer -R41-
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD player integrated inside the RCD 210 plays the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RCD 210 is OBD-capable.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the anti-theft system has been activated for the first time and that the Radio -R- is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the Radio -R- that were used in the past are no longer used.



#### Note

*The Vehicle Diagnostic Tester must be "online" to retrieve the radio code and the user must be authorized to access radio codes.*

### Electronic Anti-Theft Protection, Deactivating:

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ Sound System
- ◆ Sound System functions
- ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the Radio -R- serial number will be automatically read out.



#### Note

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*
- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

- Enter the radio code using the radio station buttons 1 through 4. Use the first radio station button to enter the first digit of the radio code. Use the second radio station button to enter the second digit.
- Press the arrow and hold it until the electronic anti-theft protection is activated. This is indicated by a short signal sound.

If the radio code has been entered correctly into Radio -R- , a radio frequency appears on the display.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.

### 1.15.3 RCD 300

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 300 radio system offers the following features:

- ◆ Monochrome display
- ◆ CD player
- ◆ UHV Low
- ◆ 2 or 4 speaker channel, 20 W each
- ◆ Connection for an external CD Changer -R41-
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD drive integrated inside the RCD 300 plays the following formats:

- ◆ Audio CD



- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RCD 300 is OBD-capable.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the anti-theft system has been activated for the first time and that the Radio -R- is reconnected in the same vehicle.

If the Radio -R- is replaced, radio code must be entered.

### Electronic Anti-Theft Protection, Deactivating:

Reactivating a locked Radio -R- is only possible by entering correct radio code number for the electronic anti-theft protection.




### Note

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

- Enter the radio code using the radio station buttons 1 through 4. Use the first radio station button to enter the first digit of the radio code. Use the second radio station button to enter the second digit.
- Press the  and hold it until the electronic anti-theft protection is activated. This is indicated by a short signal sound.



If the radio code has been entered correctly into Radio -R- , a radio frequency appears on the display.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.





### 1.15.4 RCD 030+

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 030+ radio system offers the following features:

- ◆ Monochrome display
- ◆ CD player
- ◆ UHV Low
- ◆ 2 or 4 speaker channel, 20 W each
- ◆ Connection for an external CD Changer -R41-
- ◆ USB Connection
- ◆ SD Memory Card Reader
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD player integrated inside the radio Radio -R- plays the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RCD 030+ is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➤ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

#### Electronic Anti-Theft Protection

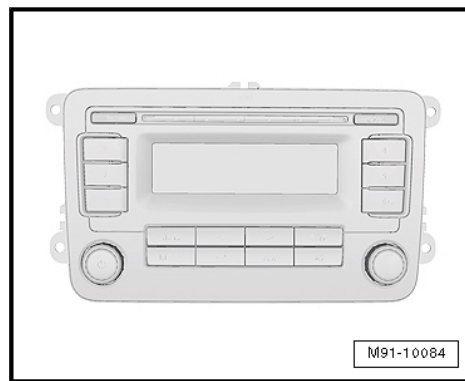
The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.

If the Radio -R- is replaced, radio code must be entered.

#### Electronic Anti-Theft Protection, Deactivating:

Reactivating a locked Radio -R- is only possible by entering correct radio code number for anti-theft protection.







#### Note

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

Position of radio code number to be set is indicated in display near four buttons with "X".

- Enter the radio code in the correct sequence using the four function buttons displayed. Keep pushing the function button until the correct number appears in the center of the display.
- Press the button next to the word "ENTER". Unit is ready for operation again and switches to last operating state.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.



### 1.15.5 RCD 300+

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 300+ radio system offers the following features:

- ◆ Monochrome display
- ◆ CD player
- ◆ UHV Low
- ◆ 2 or 4 speaker channel, 20 W each
- ◆ Connection for an external CD Changer -R41-
- ◆ USB Connection
- ◆ SD Memory Card Reader
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD player integrated inside the radio Radio -R- plays the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RCD 300+ is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

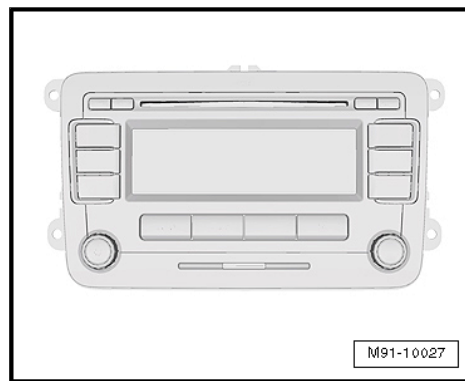
Repairing the antenna wires. Refer to Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

#### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.

After first activation of electronic anti-theft system, an internal radio code is stored in Radio -R- and in instrument cluster. If Radio -R- voltage is now cut off for repair work, a data exchange is then performed between Radio -R- and instrument cluster after reconnecting the voltage supply.





During this, the internal Radio -R- radio code is compared to the one in the instrument cluster. If the radio code is identical, the instrument cluster recognizes that the Radio -R- connected belongs to that vehicle and the Radio -R- can be used immediately. The radio code does not need to be entered again.

If the Radio -R- is replaced, radio code must be entered.

#### **Electronic Anti-Theft Protection, Deactivating:**

Reactivating a locked Radio -R- is only possible by entering correct radio code number for anti-theft protection.

- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays “SAFE” and then “1000”.

Position of radio code number to be set is indicated in display near four buttons with “X”.

- Enter the radio code in the correct sequence using the four function buttons displayed. Keep pushing the function button until the correct number appears in the center of the display.
- Press the button next to the word “ENTER”. Unit is ready for operation again and switches to last operating state.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. **Note:** Always two attempts, after that the Radio -R- will lock up for one hour.





## 1.15.6 RCD 310

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 310 radio has the following:

- ◆ 4 speaker channels, 20 W each
- ◆ CD player
- ◆ Monochrome display
- ◆ Connection for an external CD Changer -R41-
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ UHV Low
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ Integrated optional DAB tuner
- ◆ Comfort coding
- ◆ Optional support for the multifunction steering wheel
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display

The CD drive integrated inside the Radio -R- plays the following CD formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RCD 310 is OBD-capable.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➔ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft System, Deactivating

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.





Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the Radio -R- that were used in the past are no longer used.

The Vehicle Diagnostic Tester must be connected "online" to determine the anti-theft code. The user must have the proper authorization to access the anti-theft code.

Reactivating a locked Radio -R- is only possible by entering correct anti-theft code for anti-theft protection.

#### Using Vehicle Diagnostic Tester to get the anti-theft code:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Sound System
  - ◆ Sound System functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the Radio -R- serial number will be automatically read out.



#### Note

*The Vehicle Diagnostic Tester may not be able read the Radio -R- serial number when a new Radio -R- is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the Radio -R- and is also stamped into the side of the unit.*

The Vehicle Diagnostic Tester will display the anti-theft code.

The anti-theft code must be entered manually into the Radio -R- .

#### Electronic Anti-Theft Protection, Deactivating:

- Switch on the Radio -R- .

"SAFE" appears in the display for approximately 10 seconds, after that "1000" appears.

- Push the station buttons repeatedly until the correct code number sequence is displayed.

"OK" appears in the display after the four-digit code number has been entered.

- "OK" appears in the display when the correct anti-theft code has been entered.

The Radio -R- is enabled and is ready to be used.

If an incorrect anti-theft code is entered, the code can be entered a second time. If anti-theft code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- and ignition on. The procedure can be repeated after one hour.

Note: the anti-theft code can be entered two times. After that, the Radio -R- locks up for one hour.



### 1.15.7 RCD 500

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 500 radio has the following:

- ◆ Monochrome display
- ◆ 4 speaker channels, 20 W each
- ◆ Integrated 6-disc CD changer
- ◆ Connection for an external CD Changer -R41-
- ◆ UHV Low
- ◆ Connectable external sound amplifier ( Amplifier -R12- )
- ◆ Comfort coding
- ◆ Optional support for the multifunction steering wheel

The integrated CD changer can play the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The integrated CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transportation safeguard must be activated, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this.

The RCD 500 is OBD-capable.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information

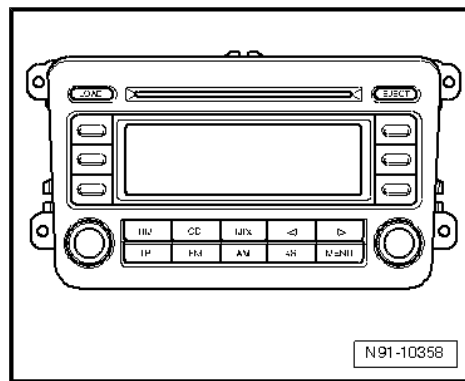
#### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.

If the Radio -R- is replaced, radio code must be entered.

The Radio -R- has been locked by the anti-theft protection. After turning on the Radio -R- "SAFE" and "1000" will appear in the display.





### Electronic Anti-Theft Protection, Deactivating:

Reactivating a locked Radio -R- is only possible by entering correct radio code number for anti-theft protection.



#### Note

- ◆ *The radio code for the electronic anti-theft system is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

Position of radio code number to be set is indicated in display near four buttons with "X".

- Enter the radio code in the correct sequence using the four function buttons displayed. Keep pushing the function button until the correct number appears in the center of the display.
- Press the button next to the word "ENTER". The Radio -R- is ready to be used again.

If the wrong radio code number was entered when overriding the electronic anti-theft protection, first "SAFE" blinks in the display and "1000" appears again. The entire process may be repeated one more time. The number of tries is shown in the display. The Radio -R- locks up again for approximately one hour if an incorrect radio is entered. "SAFE" appears in the display and stays on to indicate the lock is on. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.

### Transportation Safeguard, Activating and Deactivating

The transportation safeguard must be activated before shipping the RCD 500 and must be deactivated whenever a new RCD 500 is installed. This is done electronically using the buttons on the Radio -R-. After activating the transport protection, the CD changer mechanism is brought into »transport position«.

### Transport Protection, Activating:

Status: »ON« The wire connections must be connected to the Radio -R- .



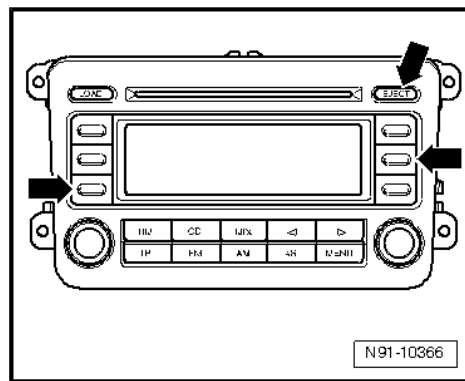


- Press and hold the buttons -arrows- together for at least five seconds.

When the CD changer reaches its transportation position, "TRANSPRT" will appear in the radio -R- display.

#### Transport Protection, Deactivating:

- Connect and install the Radio -R- .
- Deactivate transportation lock with **CANCEL** button.







### 1.15.8 Premium 7

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The Premium 7 radio has the following features:

- ◆ Monochrome display
- ◆ 4 speaker channels, 20 W each
- ◆ Integrated 6-disc CD changer
- ◆ Connection for an external CD Changer -R41-
- ◆ UHV Low
- ◆ Connectable external sound amplifier ( Amplifier -R12- )
- ◆ Comfort coding
- ◆ Connection for external Satellite Radio -R146-

The CD changer integrated inside the radio Radio -R- plays the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The Premium 7 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

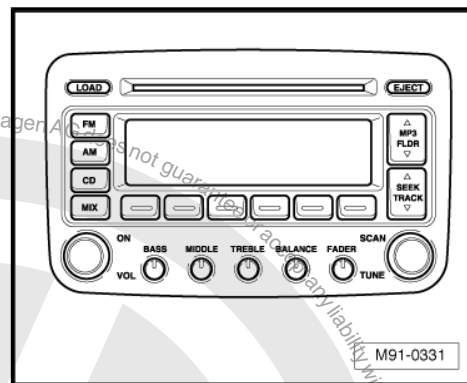
#### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the anti-theft system has been activated for the first time and that the Radio -R- is reconnected in the same vehicle.

If the Radio -R- is replaced, radio code must be entered.

The Radio -R- has been locked by the anti-theft protection. After switching on the Radio -R- "SAFE" and "1000" will appear in the display.





### Electronic Anti-Theft Protection, Deactivating:

Reactivating a locked Radio -R- is only possible by entering correct radio code number for anti-theft protection.




#### Note

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a Radio -R- is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

- Get the radio code.
- Switch on the Radio -R- .

The Radio -R- automatically displays "SAFE" and then "1000".

- Enter the radio code using the radio station buttons 1 through 4. Use the first radio station button to enter the first digit of the radio code. Use the second radio station button to enter the second digit.
- Press the  and hold it until the electronic anti-theft protection is activated. This is indicated by a short signal sound.

If the radio code has been entered correctly into Radio -R- , a radio frequency appears on the display.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- on and the key in the ignition lock. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.



## 1.15.9 Premium 8

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The Premium 8 radio has the following features:

- ◆ Display: TFT (thin film transistor), touch screen
- ◆ Integrated 6-disc CD changer
- ◆ SD Memory Card Reader
- ◆ UHV Low/Premium
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ TIM (traffic information memory)
- ◆ An optional Satellite Radio -R146- is integrated in Premium 8

The integrated CD changer can play the following formats:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The internal CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transport protection must be switched on, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this.

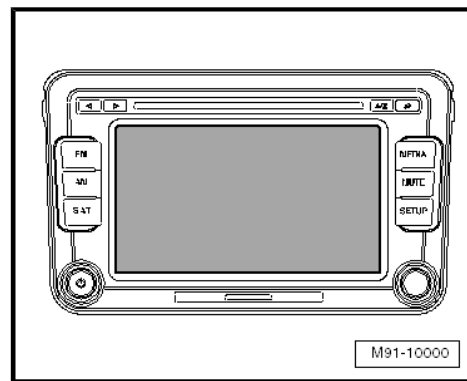
The Premium 8 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➔ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .





## Transportation Safeguard, Activating and Deactivating

The transport protection must be activated before shipping the Premium 8 and must be deactivated whenever a new Premium 8 is installed. This is done electronically using the buttons on the Radio -R-. After activating the transport protection, the internal CD changer is in the »transportation position«.

### Transport Protection, Activating:

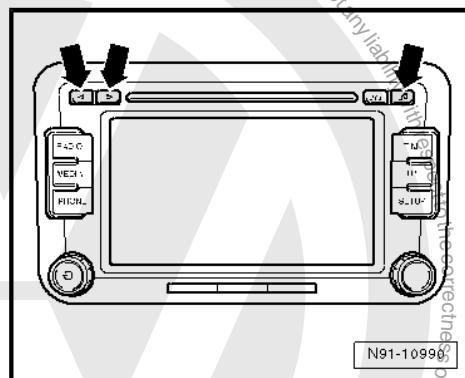
Status: »ON« The wire connections must be connected to the Radio -R- .

- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display once the CD changer has reached its transportation position.

### Transport Protection, Deactivating:

- Connect and install the Radio -R- .





- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display.

The “deactivate” button also appears.

- Press “deactivate” on the touch screen.

Now the transport protection is deactivated.

### Electronic Anti-Theft Protection

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R-, it is ready for use and the radio code does not need to be entered again. The requirement is that the anti-theft system has been activated for the first time and that the Radio -R- is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code.



#### Note

*The Vehicle Diagnostic Tester must be “online” to retrieve the radio code and the user must be authorized to access radio codes.*

Reactivating a locked Radio -R- is only possible by entering correct radio code number for the electronic anti-theft protection.

### Determine the radio code using Vehicle Diagnostic Tester:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Sound System
  - ◆ Sound System functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the Radio -R- serial number will be automatically read out.

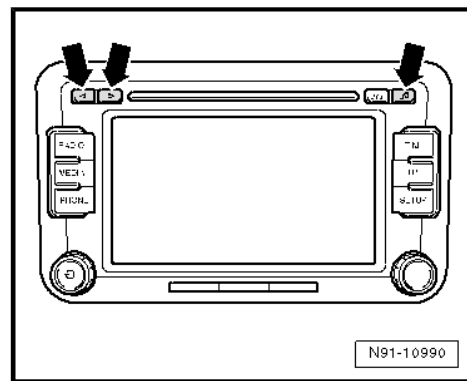


#### Note

*The Vehicle Diagnostic Tester may not be able read the Radio -R- serial number when a new Radio -R- is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the Radio -R- and is also stamped into the side of the unit.*

The Vehicle Diagnostic Tester will display the radio code.

Manually enter the radio code in the Radio -R- .





### Electronic Anti-Theft Protection, Deactivating:

- Switch on the Radio -R- .

An entry mask appears.

- Enter the correct radio code using the buttons on the radio.
- Press the input screen to confirm in the entry.

The Radio -R- is enabled and is ready to be used.

Use the correction screen to erase an incorrect code.

If the wrong radio code number was entered when overriding the electronic anti-theft protection, first "SAFE" blinks in the display and "1000" appears again. The entire process may be repeated one more time. The number of tries is shown in the display. The Radio -R- locks up again for approximately one hour if an incorrect radio is entered. "SAFE" appears in the display and stays on to indicate the lock is on. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.



## 1.16 Radio Navigation Systems

⇒ ["1.16.1 RCD 510", page 33](#)

Wagon ⇒ ["1.16.2 RCD 510+", page 36](#)

⇒ ["1.16.3 RNS 300", page 39](#)

⇒ ["1.16.4 RNS 310", page 42](#)

Wagon ⇒ ["1.16.5 RNS 315", page 45](#)

Wagon ⇒ ["1.16.6 RNS 315+", page 48](#)

⇒ ["1.16.7 RNS-MFD 2 DVD", page 51](#)

⇒ ["1.16.8 RNS 510", page 54](#)

### 1.16.1 RCD 510

#### RCD 510 radio

Familiarity with the function and operation is needed if there are customer concerns. Refer to the ⇒ Owner's Manual .

The RCD 510 radio has the following:

- ◆ Display: TFT (thin film transistor), touch screen
- ◆ Integrated 6-disc CD changer
- ◆ SD Memory Card Reader
- ◆ UHV Low/Premium
- ◆ Integrated optional DAB tuner
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ TIM (traffic information memory)

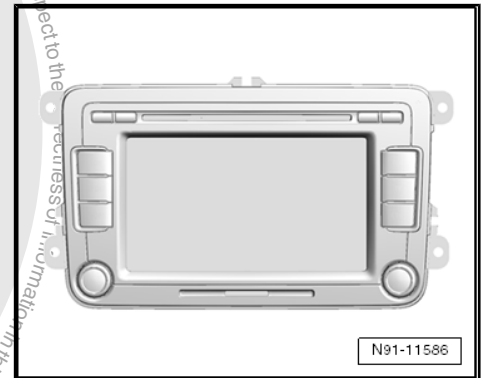
The integrated 6-disc CD changer can play the following CDs:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The internal CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transport protection must be switched on, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this.





The RCD 510 is OBD-capable.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➔ Electrical Equipment General Information; Rep. Gr. 97 ; Removal and Installation .

### Electronic Anti-Theft System

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the Radio -R- that were used in the past are no longer used.

The Vehicle Diagnostic Tester must be connected "online" to determine the anti-theft code. The user must have the proper authorization to access the anti-theft code.

Reactivating a locked Radio -R- is only possible by entering correct anti-theft code for anti-theft protection.

#### Using Vehicle Diagnostic Tester to get the anti-theft code:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Sound System
  - ◆ Sound System functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the Radio -R- serial number will be automatically read out.



#### Note

*The Vehicle Diagnostic Tester may not be able read the Radio -R- serial number when a new Radio -R- is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the Radio -R- and is also stamped into the side of the unit.*

The Vehicle Diagnostic Tester will display the anti-theft code.





The anti-theft code must be entered manually into the Radio -R- .

#### Electronic Anti-Theft Protection, Deactivating:

- Switch on the Radio -R- .

An entry mask appears.

- Enter the correct anti-theft code using the keyboard on the input mask.
- Press the input screen to confirm in the entry.

The Radio -R- is enabled and is ready to be used.

Use the correction screen to erase an incorrect code.

If an incorrect anti-theft code is entered, the code can be entered a second time. If anti-theft code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- and ignition on. The procedure can be repeated after one hour.

Note: the anti-theft code can be entered two times. After that, the Radio -R- locks up for one hour.

#### Transportation Safeguard, Activating and Deactivating

The transportation safeguard must be activated before shipping the RCD 510 and must be deactivated whenever a new RCD 510 is installed. This is done electronically using the buttons on the Radio -R- . After activating the transport protection, the internal CD changer is in the »transportation position«.

#### Transport Protection, Activating:

Status: »ON« The wire connections must be connected to the Radio -R- .

- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display once the CD changer has reached its transportation position.

#### Transport Protection, Deactivating:

- Connect and install the Radio -R- .

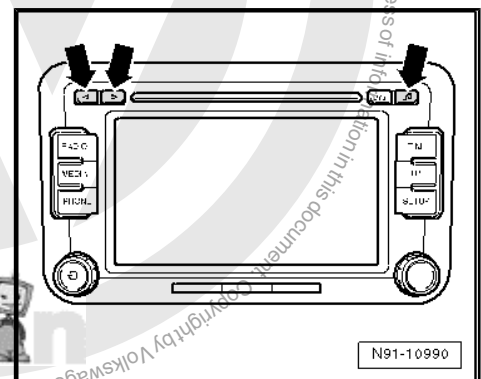
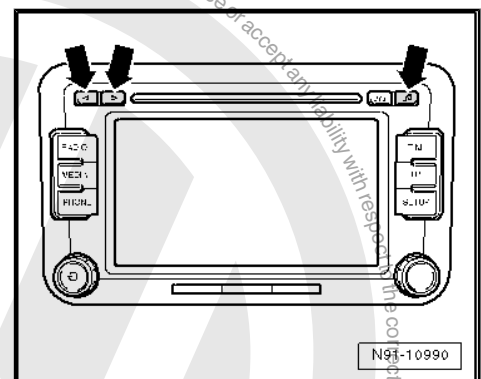
- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display.

The “deactivate” button also appears.

- Press “deactivate” on the touch screen.

Now the transport protection is deactivated.



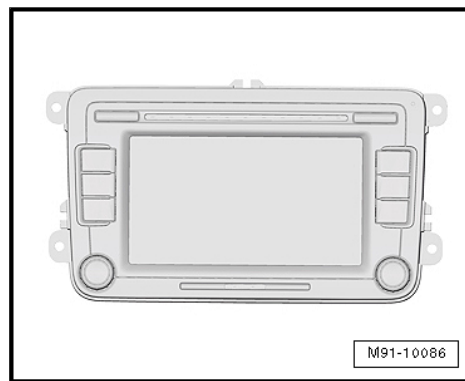


## 1.16.2 RCD 510+

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RCD 510+ radio offers the following features:

- ◆ Display: TFT (thin film transistor), touch screen
- ◆ Integrated 6-disc CD changer
- ◆ SD Memory Card Reader
- ◆ UHV Low/Premium
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ USB Connection
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ TIM (traffic information memory)



The integrated 6-disc CD changer can play the following CDs:

- ◆ Audio CD
- ◆ CD-R
- ◆ CD-RW
- ◆ MP3

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The internal CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transport protection must be switched on, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this.

The RCD 510+ is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➔ Electrical Equipment General Information; Rep. Gr. 97 ; General Information



## Electronic Anti-Theft System

The Radio -R- is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the Radio -R- and inside the instrument cluster.

After disconnecting the power supply to the Radio -R- , it is ready for use and the radio code does not need to be entered again. The requirement is that the electronic anti-theft system must be activated for the first time and that the Radio -R- is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the Radio -R- that were used in the past are no longer used.

The Vehicle Diagnostic Tester must be connected "online" to determine the anti-theft code. The user must have the proper authorization to access the anti-theft code.

Reactivating a locked Radio -R- is only possible by entering correct anti-theft code for anti-theft protection.

### Using Vehicle Diagnostic Tester to get the anti-theft code:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Sound System
  - ◆ Sound System functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the Radio -R- serial number will be automatically read out.



### Note

*The Vehicle Diagnostic Tester may not be able read the Radio -R- serial number when a new Radio -R- is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the Radio -R- and is also stamped into the side of the unit.*

The Vehicle Diagnostic Tester will display the anti-theft code.

The anti-theft code must be entered manually into the Radio -R- .

### Electronic Anti-Theft Protection, Deactivating:

- Switch on the Radio -R- .

An entry mask appears.

- Enter the correct anti-theft code using the keyboard on the input mask.
- Press the input screen to confirm in the entry.

The Radio -R- is enabled and is ready to be used.

Use the correction screen to erase an incorrect code.



If an incorrect anti-theft code is entered, the code can be entered a second time. If anti-theft code is entered incorrectly twice, then the Radio -R- will lock up for one hour. Leave the Radio -R- and ignition on. The procedure can be repeated after one hour.

Note: the anti-theft code can be entered two times. After that, the Radio -R- locks up for one hour.

### Transportation Safeguard, Activating and Deactivating

The transportation safeguard must be activated before shipping the RCD 510+ and must be deactivated whenever a new RCD 510+ is installed. This is done electronically using the buttons on the Radio -R-. After activating the transport protection, the internal CD changer is in the »transportation position«.

#### Transport Protection, Activating:

Status: »ON« The wire connections must be connected to the Radio -R- .

- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display once the CD changer has reached its transportation position.

#### Transport Protection, Deactivating:

- Connect and install the Radio -R- .

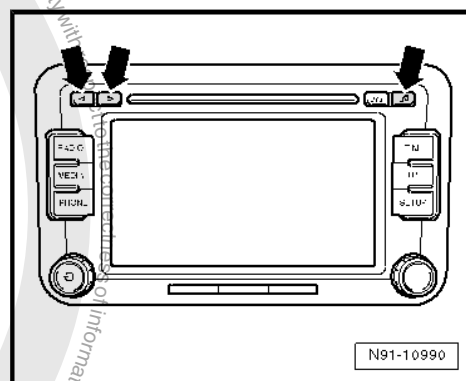
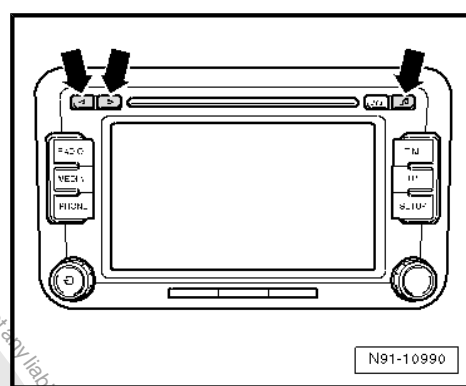
- Press and hold the buttons -arrows- together for at least five seconds.

“CDC transport protection activated” appears in the radio display.

The “deactivate” button also appears.

- Press “deactivate” on the touch screen.

Now the transport protection is deactivated.





### 1.16.3 RNS 300

#### RNS 300 Radio Navigation System

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

For proper function of the RNS, rotation angle sensor in unit must be set corresponding to installation position of unit in the vehicle. Therefore, always pay close attention to the part number when replacing the unit. An incorrect installation causes malfunctions in the navigation system.

By the use of magnetically adhered antennae on vehicle roof, there is the hazard that the compass module will malfunction due to magnetic influence and remaining magnetization of the vehicle roof. For complaints of inaccurate or faulty direction displays on the compass module, ask the customer whether a magnetically adhered antenna is being used before starting repair work.

The RNS 300 radio/navigation system has the following:

- ◆ Monochrome display
- ◆ Integrated CD player
- ◆ UHV Low
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD drive can read the navigation CD-ROM or also play an audio CD. During playback of an audio CD, it is only possible to operate the navigation system with restrictions.

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)
- ◆ MP3

The RNS 300 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

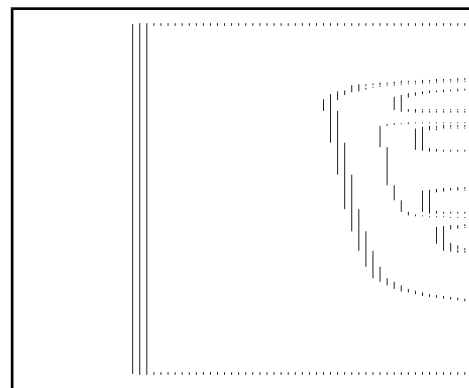
#### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➤ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

#### Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.





After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.

After first activation of electronic anti-theft protection, an internal radio code is stored in RNS (Radio Navigation System) and in instrument cluster. If the power to the RNS (Radio Navigation System) was cut off, then there will be a data exchange between the RNS (Radio Navigation System) and the instrument cluster after the power is connected again.

During this, the internal radio numeric code is compared to the one in the instrument cluster. If the radio code is identical, the instrument cluster recognizes that the RNS (Radio Navigation System) connected belongs to that vehicle and the RNS (Radio Navigation System) can be used immediately. The anti-theft code does not need to be entered again.

If the RNS (Radio Navigation System) is replaced, radio code must be entered.

Deactivate the electronic anti-theft protection ⇒ [page 40](#) .

Then, after the “S-contact” is switched on via the ignition lock, the comparison between instrument cluster and RNS (Radio Navigation System) is started automatically.

**The comparison lasts approximately five seconds. The Vehicle Diagnostic Tester must be connected during this time.**

When the power supply is disconnected, the RNS (Radio Navigation System) is ready for use in this vehicle once the power supply is connected. The radio code does not need to be entered again.

The electronic anti-theft protection is activated and will lock the RNS (Radio Navigation System) as soon as:

- ◆ RNS (Radio Navigation System) is installed in a different vehicle
- ◆ the instrument cluster is replaced.

A RNS (Radio Navigation System) which has been locked by the electronic anti-theft system will then show the letters “SAFE” and “1000” on its display when switched on.

Deactivate the electronic anti-theft protection to cancel the lock.

#### **Electronic Anti-Theft Protection, Deactivating:**

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct radio code number for anti-theft protection.



#### **Note**

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a RNS (Radio Navigation System) is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

- Get the radio code.



- Turn on the RNS.

The RNS displays “SAFE” automatically and then “1000”.

Position of radio code number to be set is indicated in display near four buttons with “X”.

- Enter the radio code in the correct sequence using the four function buttons displayed. Keep pushing the function button until the correct number appears in the center of the display.
- Press the button next to the word “ENTER”. Unit is ready for operation again and switches to last operating state.

If the wrong radio code number was entered when overriding the electronic anti-theft protection, first “SAFE” blinks in the display and “1000” appears again. The entire process may be repeated one more time. The number of tries is shown in the display. The Radio -R- locks up again for approximately one hour if an incorrect radio is entered. “SAFE” appears in the display and stays on to indicate the lock is on. The process can be repeated again after an hour. Note: Always two attempts, after that the Radio -R- will lock up for one hour.





## 1.16.4 RNS 310

### RNS 310 Radio Navigation System

The RNS 310 radio/navigation system has the following:

- ◆ Monochrome display
- ◆ Integrated CD player
- ◆ UHV Low/Premium
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ External Audio Source Connection -R199- on the front of the unit
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding

The CD drive can read the navigation CD-ROM or also play an audio CD. During playback of an audio CD, it is only possible to operate the navigation system with restrictions.

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)
- ◆ MP3

The RNS 310 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

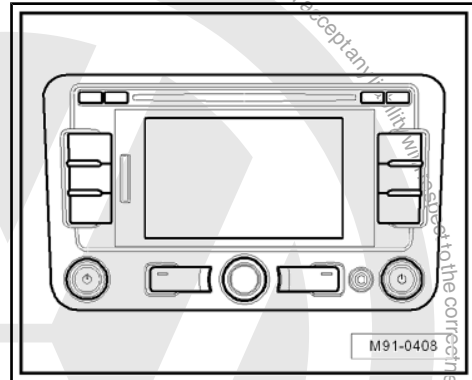
Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.

After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the RNS (Radio Navigation System) that were used in the past are no longer used.







#### Note

*The Vehicle Diagnostic Tester must be "online" (connected to the network) to get the radio code and the user must be authorized to access radio codes.*

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct radio code number for anti-theft protection.

#### Determine the radio code using Vehicle Diagnostic Tester:

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the radio serial number of the radio/navigation system will be automatically read out.



#### Note

*It is possible that the Vehicle Diagnostic Tester will not be able to read the serial number when a new RNS is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the unit and is also stamped into the side of the RNS (Radio Navigation System).*

The Vehicle Diagnostic Tester will display the anti-theft code.

Manually enter the radio code in the RNS (Radio Navigation System).

#### Electronic Anti-Theft Protection, Deactivating:

- Turn on the RNS.

"SAFE" appears in the display for approximately 10 seconds, after that "1000" appears.

- Push the station buttons repeatedly until the correct radio code number sequence is displayed.

"OK" appears in the display after the four-digit radio code number has been entered.

- "OK" appears in the display when the correct radio code has been entered.

Unit is enabled and ready for operation.



It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the RNS (Radio Navigation System) is locked for an hour. Leave the RNS and ignition on. The process can be repeated again after an hour. Note: Always two attempts, after that the RNS (Radio Navigation System) will lock up for one hour.





## 1.16.5 RNS 315

### RNS 315 Radio Navigation System

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

For proper function of the RNS, rotation angle sensor in unit must be set corresponding to installation position of unit in the vehicle. Therefore, always pay close attention to the part number when replacing the unit. An incorrect installation causes malfunctions in the navigation system.

By the use of magnetically adhered antennae on vehicle roof, there is the hazard that the compass module will malfunction due to magnetic influence and remaining magnetization of the vehicle roof. For complaints of inaccurate or faulty direction displays on the compass module, ask the customer whether a magnetically adhered antenna is being used before starting repair work.

The RNS 315 radio/navigation system has the following:

- ◆ Display: 5-inch color display
- ◆ Integrated CD player
- ◆ SD Memory Card Reader
- ◆ UHV-Low/Premium
- ◆ Navigation function using a 3D card and language
- ◆ CD/SD Navigation (Navigation without a CD inserted)
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ External Audio Source Connection -R199- on the front of the unit
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ Integrated optional DAB tuner

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

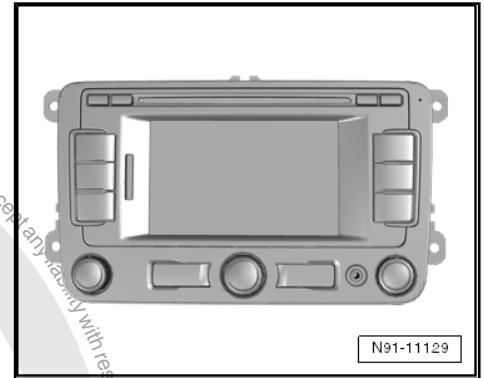
The RNS 315 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .





## Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.

After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the RNS (Radio Navigation System) that were used in the past are no longer used.



### Note

*The Vehicle Diagnostic Tester must be "online" to retrieve the radio code and the user must be authorized to access radio codes.*

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct number code for anti-theft protection.

### Determine the radio code using Vehicle Diagnostic Tester:

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions
  - ◆ Radio code inquiry

Authorization will be requested from the system. Then the operating data, the VIN and the radio serial number of the radio/navigation system will be automatically read out.



### Note

*It is possible that the Vehicle Diagnostic Tester will not be able to read the serial number when a new RNS is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the unit and is also stamped into the side of the RNS (Radio Navigation System).*

The Vehicle Diagnostic Tester will display the anti-theft code.

Manually enter the radio code in the RNS (Radio Navigation System).

### Electronic Anti-Theft Protection, Deactivating:

- Turn on the RNS.

"SAFE" appears in the display for approximately 10 seconds, after that "1000" appears.

- Enter the correct radio code using the buttons on the radio.



- Press the input screen to confirm in the entry.

The RNS (Radio Navigation System) is enabled and ready for operation.

Use the correction screen to erase an incorrect code.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the RNS (Radio Navigation System) is locked for an hour. Leave the RNS and ignition on. The process can be repeated again after an hour.

Note: Always two attempts, after that the RNS (Radio Navigation System) will lock up for one hour.





## 1.16.6 RNS 315+

### RNS 315+ Radio/Navigation System

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

The RNS 315+ radio/navigation system has the following:

- ◆ Display: 5-inch color display
- ◆ Integrated CD player
- ◆ SD Memory Card Reader
- ◆ UHV Low/Premium
- ◆ Navigation function using a 3D card and language
- ◆ CD/SD Navigation (Navigation without a CD inserted)
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ USB Connection
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ An optional universal cellular telephone preparation (UHV) with an integrated Bluetooth antenna

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

The RNS 315+ is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

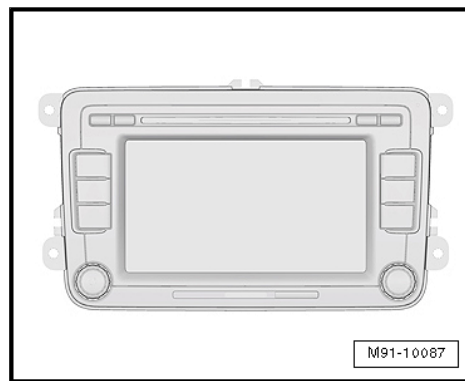
A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.

After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.





Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the RNS (Radio Navigation System) that were used in the past are no longer used.



#### Note

*The Vehicle Diagnostic Tester must be "online" to retrieve the radio code and the user must be authorized to access radio codes.*

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct number code for anti-theft protection.

#### Determine the radio code using Vehicle Diagnostic Tester:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the radio serial number of the radio/navigation system will be automatically read out.



#### Note

*It is possible that the Vehicle Diagnostic Tester will not be able to read the serial number when a new RNS is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the unit and is also stamped into the side of the RNS (Radio Navigation System).*

The Vehicle Diagnostic Tester will display the anti-theft code.

Manually enter the radio code in the RNS (Radio Navigation System).

#### Electronic Anti-Theft Protection, Deactivating:

- Turn on the RNS.

"SAFE" appears in the display for approximately 10 seconds, after that "1000" appears.

- Enter the correct radio code using the buttons on the radio.
- Press the input screen to confirm in the entry.

The RNS (Radio Navigation System) is enabled and ready for operation.

Use the correction screen to erase an incorrect code.



It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the RNS (Radio Navigation System) is locked for an hour. Leave the RNS and ignition on. The process can be repeated again after an hour.  
Note: Always two attempts, after that the RNS (Radio Navigation System) will lock up for one hour.





## 1.16.7 RNS-MFD 2 DVD

### RNS MFD 2 DVD Radio/Navigation System

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

For proper function of the RNS, rotation angle sensor in unit must be set corresponding to installation position of unit in the vehicle. Therefore, always pay close attention to the part number when replacing the unit. An incorrect installation causes malfunctions in the navigation system.

By the use of magnetically adhered antennae on vehicle roof, there is the hazard that the compass module will malfunction due to magnetic influence and remaining magnetization of the vehicle roof. For complaints of inaccurate or faulty direction displays on the compass module, ask the customer whether a magnetically adhered antenna is being used before starting repair work.

The RNS-MFD 2 DVD radio/navigation system has the following features:

- ◆ Display: 6.5-inch color display
- ◆ Integrated DVD drive for navigation
- ◆ UHV Low/Premium
- ◆ Traffic information TIM (traffic information memory)
- ◆ 4 speaker channels, 20-W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ Optional Satellite Radio -R146-
- ◆ Optional TV Tuner -R78-

Playback of audio CDs is only possible with an external CD Changer -R41- .

The RNS-MFD 2 DVD is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

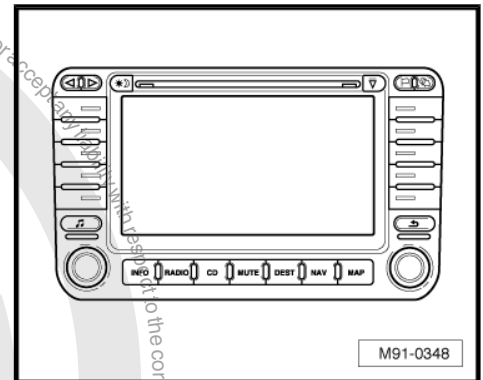
### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➤ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .

### Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.





After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.

After first activation of electronic anti-theft protection, an internal radio code is stored in RNS (Radio Navigation System) and in instrument cluster. If the power to the RNS (Radio Navigation System) was cut off, then there will be a data exchange between the RNS (Radio Navigation System) and the instrument cluster after the power is connected again.

During this, the internal radio numeric code is compared to the one in the instrument cluster. If the radio code is identical, the instrument cluster recognizes that the RNS (Radio Navigation System) connected belongs to that vehicle and the RNS (Radio Navigation System) can be used immediately. The anti-theft code does not need to be entered again.

If the RNS (Radio Navigation System) is replaced, radio code must be entered.

Deactivate the electronic anti-theft protection ⇒ [page 52](#) .

Then, after the “S-contact” is switched on via the ignition lock, the comparison between instrument cluster and RNS (Radio Navigation System) is started automatically.

**The comparison lasts approximately five seconds. The Vehicle Diagnostic Tester must be connected during this time.**

When the power supply is disconnected, the RNS (Radio Navigation System) is ready for use in this vehicle once the power supply is connected. The radio code does not need to be entered again.

The electronic anti-theft protection is activated and will lock the RNS (Radio Navigation System) as soon as:

- ◆ RNS (Radio Navigation System) is installed in a different vehicle
- ◆ the instrument cluster is replaced

A RNS (Radio Navigation System), which has been locked by the electronic anti-theft protection, will then show the letters “SAFE” and “1000” on its display when switched on.

Deactivate the electronic anti-theft protection to cancel the lock ⇒ [page 52](#) .

#### **Electronic Anti-Theft Protection, Deactivating :**

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct radio code number for anti-theft protection.



#### **Note**

- ◆ *The radio code for the electronic anti-theft protection is attached to the radio card next to the serial number. Refer to the Owner's Manual.*
- ◆ *For reasons of safety, do not leave the radio card in the vehicle. Get the radio code from the customer.*
- ◆ *If a RNS (Radio Navigation System) is being replaced, then use the radio code of the replacement radio.*
- ◆ *Tell the customer the radio code has been changed.*

– Get the radio code.



- Turn on the RNS.

Word “SAFE” and number row “0000” appear in display.

- Enter the radio code by selecting and confirming characters on the selection screen for letters and numbers in succession



#### Note

*Entering the first character overwrites the number row “0000”.*

- Press the right knob to confirm the radio code.
- “OK” appears in the display when the correct radio code has been entered.

Unit is enabled and ready for operation.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the RNS (Radio Navigation System) is locked for an hour. Leave the RNS and ignition on. The process can be repeated again after an hour. Note: Always two attempts, after that the RNS (Radio Navigation System) will lock up for one hour.



## 1.16.8 RNS 510

### RNS 510 Radio Navigation System

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

For proper function of the RNS, rotation angle sensor in unit must be set corresponding to installation position of unit in the vehicle. Therefore, always pay close attention to the part number when replacing the unit. An incorrect installation causes malfunctions in the navigation system.

By the use of magnetically adhered antennae on vehicle roof, there is the hazard that the compass module will malfunction due to magnetic influence and remaining magnetization of the vehicle roof. For complaints of inaccurate or faulty direction displays on the compass module, ask the customer whether a magnetically adhered antenna is being used before starting repair work.

The RNS 510 radio/navigation system has the following:

- ◆ Display: 6.5-inch color display with touchscreen
- ◆ Integrated DVD player for navigation, video and audio
- ◆ A hard drive disc is installed in the unit for storing data
- ◆ SD Memory Card Reader
- ◆ UHV Low/Premium
- ◆ Traffic information TIM (traffic information memory)
- ◆ Corridor function
- ◆ 4 speaker channels, 20 W each
- ◆ Multimedia System Control Module -J650- connection
- ◆ Connection for External Audio Source Connection -R199-
- ◆ Connection for an external CD Changer -R41-
- ◆ Connection for an external sound amplifier ( Amplifier -R12- )
- ◆ OPS (Optical Parking System)
- ◆ A/C information shown in the radio display
- ◆ Optional support for the multifunction steering wheel
- ◆ Comfort coding
- ◆ Integrated optional DAB tuner
- ◆ Optional TV tuner

It is not possible to play the following formats:

- ◆ 8 cm CDs
- ◆ "Mix CDs" (CDs containing files and audio files)

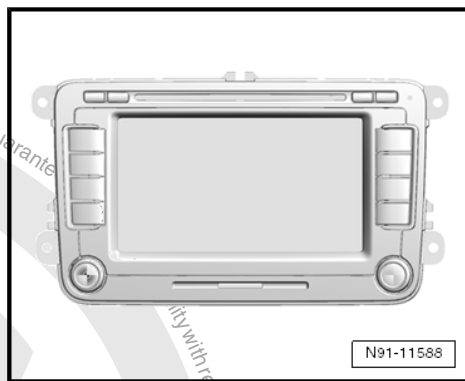
The RNS 510 is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; Removal and Installation .





## Electronic Anti-Theft Protection

The RNS is equipped with convenience anti-theft protection, which operates in conjunction with the instrument cluster. The radio code is stored internally inside the RNS and inside the instrument cluster.

After disconnecting the power supply to the RNS, it is ready for use and the radio code does not need to be entered again. The requirement is that the first activation of the electronic anti-theft protection follows and that the RNS (Radio Navigation System) is reconnected in the same vehicle.

Use the Vehicle Diagnostic Tester to get the radio code. The radio card and the label on the RNS (Radio Navigation System) that were used in the past are no longer used.



### Note

*The Vehicle Diagnostic Tester must be "online" to retrieve the radio code and the user must be authorized to access radio codes.*

Reactivating a locked RNS (Radio Navigation System) is only possible by entering correct number code for anti-theft protection.

### Determine the radio code using Vehicle Diagnostic Tester:

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions
  - ◆ Radio code inquiry

Authorization will be requested from the system: Then the operating data, the VIN and the radio serial number of the radio/navigation system will be automatically read out.



### Note

*It is possible that the Vehicle Diagnostic Tester will not be able to read the serial number when a new RNS is installed. In this case enter the unit number manually. The serial number can be found on a sticker on the unit and is also stamped into the side of the RNS (Radio Navigation System).*

The Vehicle Diagnostic Tester will display the anti-theft code.

Manually enter the radio code in the RNS (Radio Navigation System).

### Electronic Anti-Theft Protection, Deactivating:

- Turn on the RNS.

"SAFE" appears in the display for approximately 10 seconds, after that "1000" appears.

- Enter the correct radio code using the buttons on the radio.



- Press the input screen to confirm in the entry.

The RNS (Radio Navigation System) is enabled and ready for operation.

Use the correction screen to erase an incorrect code.

It is possible to enter the radio code again if it was entered incorrectly. If radio code is entered incorrectly twice, then the RNS (Radio Navigation System) is locked for an hour. Leave the RNS and ignition on. The process can be repeated again after an hour. Note: Always two attempts, after that the RNS (Radio Navigation System) will lock up for one hour.

## 1.17 Speakers

All radios/radio-navigation systems have a front speaker system consisting of a 3-way system with one bass speaker and one mid-range speaker in each front door and a treble speaker in the left and right mirror triangle/A-pillars. The 3-way system front speakers are connected by a frequency crossover, depending on the version.

The rear doors have a 2-way system consisting of the bass speaker and treble speaker, depending on the vehicle equipment level.

There may be a subwoofer under the rear shelf depending on the vehicle version.

All speakers are passive speakers.

## 1.18 Satellite Radio -R146-

Depending on the radio/RNS being used, a Satellite Radio -R146- can expand the radio reception to include radio satellite programs (XM/Sirius). Radio satellite programs are limited in North America.

Make sure the radio/RNS and the Satellite Radio -R146- are working correctly if there are customer complaints. Refer to the Operating Instructions.

The Satellite Radio -R146- has a Satellite Antenna -R170- installed at the rear of the roof.

The Satellite Radio -R146- is inside the luggage compartment under the rear shelf on the Sedan model. In the Wagon model, the Satellite Radio -R146- is under the front passenger seat.

From MY 2010, the Satellite Radio -R146- is part of the radio/RNS.

The Satellite Radio -R146- is not OBD-capable.

Use the Wiring diagrams, Troubleshooting & Component locations for Fault Finding.

From MY 2010, the Satellite Radio -R146- is part of the radio/RNS. Perform Fault Finding via the radio/RNS.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .



## 1.19 Telephone Systems

Two versions of the telephone system are possible. As a complete telephone system and a cellular telephone preparation.

The telephone system or cellular telephone preparation is available only with a radio/RNS

It is possible to retrofit telephones ( Cellular Telephones -R54- ) in vehicles with telephone preparation.

The Telephone Transceiver -R36- is already factory installed on vehicles with cell phone preparation.

Only one adapter needed for the Telephone Baseplate -R126- . It depends on which Cellular Telephone -R54- is going to be used.

The entire system, including the Cellular Telephone -R54- is installed in vehicles having a telephone system.

Cellular telephone preparation "UHV Low" and "UHV Premium Light" became available beginning with MY 2009.

The cellular telephone preparation "UHV Low" is also known as "universal cellular telephone preparation Low" with a Telephone Baseplate -R126- inside the center console.

Bluetooth for the Cellular Telephone -R54- is not supported. The Telephone Baseplate -R126- controls the telephone. The Telephone Antenna -R65- is connected to the Telephone Baseplate -R126- .

The cellular telephone preparation "UHV Premium Light" is also known as the "universal cellular telephone preparation Premium Light" with Bluetooth technology and an optional Telephone Baseplate -R126- inside the center console. The Telephone Antenna -R65- is connected to the cellular telephone preparation.

The "UHV Premium Light" is a fixed installation telephone without a wire connection; telephone data is stored via Bluetooth to the Cellular Telephone -R54- registered to the vehicle.

"UHV Premium Light" strictly requires, that the Cellular Telephone -R54- is interfaced via Bluetooth and supports "Remote SIM Access Profile" (rSAP).

With rSAP, telephone entries, for example, can be accessed on the cell phone SIM card.

For additional information, refer to the Owner's Manual.

Telephone systems are equipped with On Board Diagnostic (OBD) capabilities.

For troubleshooting, use the Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

### Repairing Antenna Wires

A new repair concept has been developed for repairing antenna wires. Instead of a complete antenna wire, connecting wires of different lengths and various adapter leads are now available as replacement parts.

Repairing the antenna wires. Refer to ➤ Electrical Equipment General Information; Rep. Gr. 97 ; General Information .



## 1.20 USB Connection Baseplate -R193-

Familiarity with the function and operation is needed if there are customer concerns. Refer to the Owner's Manual.

### Installed Location: In Center Console

The USB connection baseplate for connecting USB memory devices (USB memory sticks or MP3 player) can be ordered as an accessory.

The USB storage medium is connected to the USB connection baseplate. The contents can be displayed and selected on Radio/RNS display. The USB connection baseplate provides the voltage for the USB memory device.

### Troubleshooting

The USB connection baseplate does not have CAN diagnostic capabilities.

Fault finding procedure, refer to

⇒ ["4.25 USB Connection Baseplate R193 , Troubleshooting"](#)  
[page 172](#) .

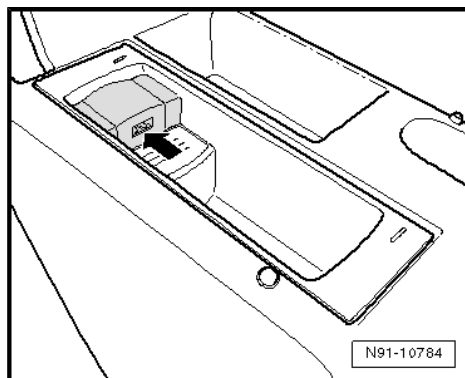
### Supported Music Data Formats

Only music files in the following file formats can be played:

- ◆ "MP3" (MPEG1 Layer 3 from 32 to 320 kbps)
- ◆ "wma" (from 8 to 192 kbps)
- ◆ "wav" (16 kHz sampling frequency with 16 bit encoding, stereo)
- ◆ "ogg vorbis" (to q10, 48 kHz, Stereo)

DMR music formats are not supported!

### Supported Storage Media







Trouble-free function is assured only when the memory sticks, MP3 players and radios authorized by Volkswagen are used. The use of memory sticks or MP3 players from other manufacturers may not be guaranteed. However, a minimum qualification is that the memory device has at least one of the two USB certificates.

The following storage media are supported:

#### Approved MP3 Players

- ◆ Manufacturer "Cebop", model "Run XL", memory size 1024 MB, connection via USB-A
- ◆ Manufacturer "Maxfield", model "MaxRobot", memory size 512 MB, connection via USB-A
- ◆ Manufacturer "Philips", model "SA 177", memory size 512 MB, connection via USB-A
- ◆ Manufacturer "Grundig", model "MP 500", memory size 256 MB, connection via USB-A
- ◆ Manufacturer "Mambox", model "Color", memory size 256 MB, connection via USB-A
- ◆ Manufacturer "Trekstor", model "Music Stick 100", memory size 256 MB, connection via USB-A
- ◆ Manufacturer "Trekstor", model "21617-i-Beat", memory size 512 MB, connection via mini-USB
- ◆ Manufacturer "Time", model "DPA-20 FL+", memory size 128 MB, connection via USB

#### Approved Memory Sticks

Manufacturer "Blue Pearl", model "Cn Memory", memory size 64 MB, connection via USB-A

Manufacturer "Buffalo", model "Firestix", memory size 2 GB, connection via USB-A

Manufacturer "Lexar Media", model "Jump Drive", memory size 128 MB, connection via USB-A

Manufacturer "LG", model "Mirror USB Drive", memory size 128 MB, connection via USB-A

Manufacturer "Silver Pearl", model "Micro X", memory size 1024 MB, connection via USB-A

Manufacturer "Pretec", model "i-Disk Tiny 2.0", memory size 128 MB, connection via USB-A

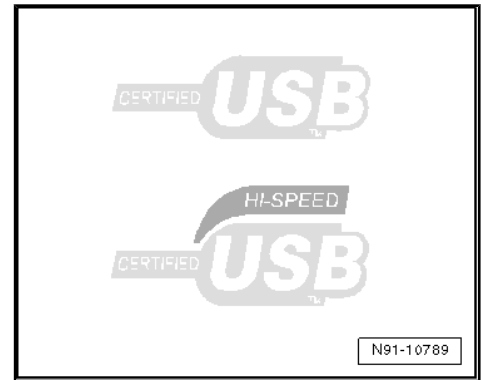
#### Approved Radio

Proper function is then assured if a Volkswagen radio is installed at the factory. Proper function is not guaranteed when using commercial radios.

## 1.21 Vehicle GPS

The vehicle GPS consists of a Vehicle Positioning System Control Module -J895- in the luggage compartment.

The Vehicle GPS Antenna 1 -R259- and the Vehicle GPS Antenna 2 -R260- are located in the rear bumper.







## 2 Description and Operation

⇒ [“2.1 Amplifier R12 Connectors”, page 61](#)

**Sedan** ⇒ [“2.2 Antenna Systems”, page 65](#)

**Wagon** ⇒ [“2.3 Antenna Systems”, page 68](#)

⇒ [“2.4 CD Changer R41 Connector”, page 72](#)

⇒ [“2.5 Cellular Telephone and Two-Way Radios Battery/Radio/  
Fuses/Wiring Harnesses Overview”, page 72](#)

⇒ [“2.6 Low Entry Radio”, page 74](#)

⇒ [“2.7 External Audio Source R199 Connector”, page 76](#)

⇒ [“2.8 External Audio Source Connection 2 R231 \(USB Port\),  
Connector”, page 76](#)

⇒ [“2.9 iPod Baseplate R192”, page 77](#)

⇒ [“2.10 MFD 2 Navigation Radio”, page 78](#)

⇒ [“2.11 Multimedia System Control Module J650 Overview”,  
page 84](#)

⇒ [“2.12 Rearview Camera System Component Location”,  
page 87](#)

⇒ [“2.13 Radio Premium 7”, page 88](#)

⇒ [“2.14 RCD 210”, page 91](#)

⇒ [“2.15 RCD 300”, page 95](#)

**Wagon** ⇒ [“2.16 RCD 030+”, page 98](#)

**Wagon** ⇒ [“2.17 RCD 300+”, page 102](#)

⇒ [“2.18 RCD 310”, page 105](#)

⇒ [“2.19 Radio Premium 8”, page 110](#)

⇒ [“2.20 RCD 500”, page 116](#)

⇒ [“2.21 RNS 300”, page 119](#)

⇒ [“2.22 RNS 310”, page 121](#)

**Wagon** ⇒ [“2.23 RNS 315”, page 125](#)

**Wagon** ⇒ [“2.24 RNS 315+”, page 128](#)

⇒ [“2.25 RCD 510”, page 133](#)

**Wagon** ⇒ [“2.26 RCD 510+”, page 138](#)

⇒ [“2.27 RNS 510”, page 141](#)

⇒ [“2.28 Satellite Radio R146 Connectors”, page 147](#)

⇒ [“2.29 Speaker Systems Overviews”, page 147](#)

⇒ [“2.30 Telephone System Overviews”, page 154](#)

⇒ [“2.31 USB Connection Baseplate R193 Connector”,  
page 162](#)

### 2.1 Amplifier -R12- Connectors

⇒ [“2.1.1 With 23/24-pin Connector”, page 61](#)

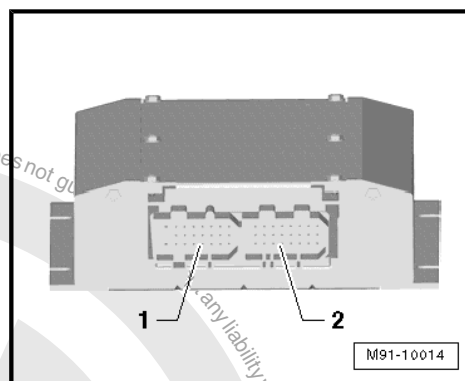
⇒ [“2.1.2 With 38-Pin Connector”, page 63](#)



## 2.1.1 With 23/24-pin Connector

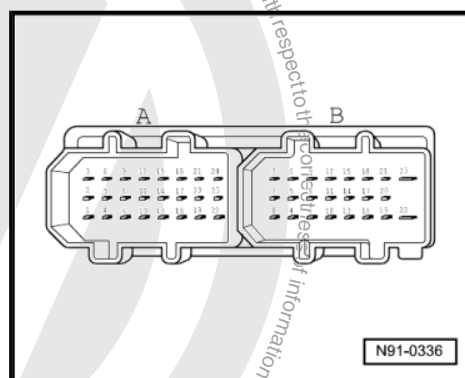
### Digital Sound System Control Module -R12-

- 1 - Multi-pin connector B, 23-pin
- 2 - Multi-pin connector A, 24-pin



### Multi-pin Connector A, 24-pin

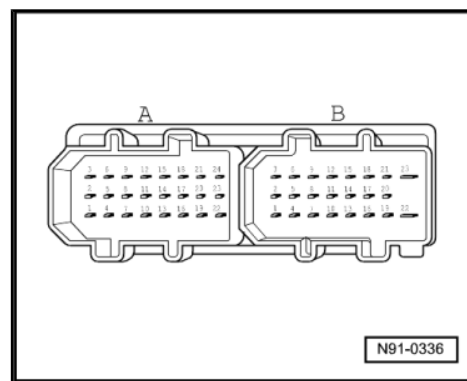
- 1 - Left rear treble speaker -R14- (+)
- 2 - Right rear bass speaker -R17- (-)
- 3 - Right rear bass speaker -R17- (-)
- 4 - Left rear bass speaker -R15- (+)
- 5 - Right rear treble speaker -R16- (-)
- 6 - Right rear treble speaker -R16- (+)
- 7 - Left rear treble speaker -R14- (-)
- 8 - Left front bass speaker -R21- (-)
- 9 - Left front bass speaker -R21- (+)
- 10 - Left rear bass speaker -R15- (-)
- 11 - Right front midrange speaker -R104- (-)
- 12 - Right front midrange speaker -R104- (-)
- 13 - Not used
- 14 - Left rear signal input (-)
- 15 - Left rear signal input (+)
- 16 - Not used
- 17 - Right rear signal input (-)
- 18 - Right rear signal input (+)
- 19 - Control in (optional)
- 20 - Left front signal input (-)
- 21 - Left front signal input (+)
- 22 - Not used
- 23 - Right front signal input (-)
- 24 - Right front signal input (+)





### Multi-pin connector B, 23-pin

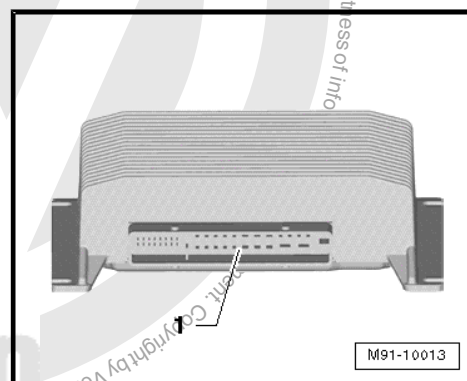
- 1 - CAN Bus, Low
- 2 - Left front midrange speaker -R103- (-)
- 3 - Left front midrange speaker -R103- (+)
- 4 - CAN Bus, High
- 5 - Not used
- 6 - Left front treble speaker -R20- (-)
- 7 - Not used
- 8 - Not used
- 9 - Left front treble speaker -R20- (+)
- 10 - Not used
- 11 - Right front bass speaker -R23- (+)
- 12 - Right front bass speaker -R23- (+)
- 13 - Not used
- 14 - Not used
- 15 - Right front treble speaker -R22- (+)
- 16 - Terminal 31
- 17 - Not used
- 18 - Right front treble speaker -R22- (-)
- 19 - Terminal 31
- 20 - Terminal 30
- 21 - Terminal 30
- 22 - Terminal 31
- 23 - Terminal 30



### 2.1.2 With 38-Pin Connector

#### Amplifier -R12-

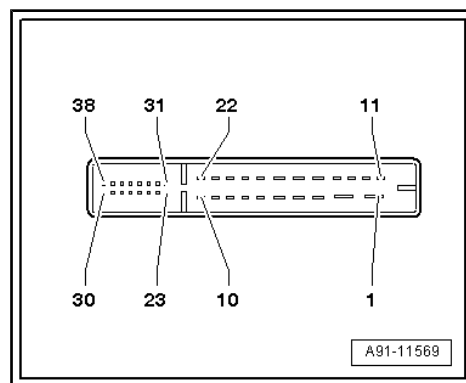
- 1 - Multi-pin connector 38-pin





## Multi-pin Connector, 38-pin

- 1 - Terminal 31
- 2 - Terminal 30
- 3 - Right front bass speaker -R23- (-)
- 4 - Subwoofer in rear shelf -R157- (-) 2
- 5 - Subwoofer in rear shelf -R157- (+) 1
- 6 - Left front bass speaker -R21- (-)
- 7 - Right front treble speaker -R22- (-)
- 8 - Left front treble speaker -R20- (+)
- 9 - Left rear bass speaker -R15- (+)
- 10 - Right rear bass speaker -R17- (-)
- 11 - Right front midrange speaker -R104- (-)
- 12 - Right front midrange speaker -R104- (+)
- 13 - Left front midrange speaker -R103- (+)
- 14 - Left front midrange speaker -R103- (-)
- 15 - Right front bass speaker -R23- (+)
- 16 - Subwoofer in rear shelf -R157- (+) 2
- 17 - Subwoofer in rear shelf -R157- (-) 1
- 18 - Left front bass speaker -R21- (+)
- 19 - Right front treble speaker -R22- (+)
- 20 - Left front treble speaker -R20- (-)
- 21 - Left rear bass speaker -R15- (-)
- 22 - Right rear bass speaker -R17- (+)
- 23 - CAN Bus, Low
- 24 - Not used
- 25 - Not used
- 26 - Not used
- 27 - Left rear signal input (-)
- 28 - Right rear signal input (-)
- 29 - Left front signal input (-)
- 30 - Right front signal input (-)
- 31 - CAN Bus, High
- 32 - Not used
- 33 - Not used
- 34 - Not used
- 35 - Left rear signal input (+)
- 36 - Right rear signal input (+)
- 37 - Left front signal input (+)
- 38 - Right front signal input (+)





## 2.2 Antenna Systems

⇒ [“2.2.1 Antenna System Overview”, page 65](#)

⇒ [“2.2.2 Antenna System Component Location”, page 67](#)

### 2.2.1 Antenna System Overview

#### 1 - Satellite Antenna -R170-

- ☐ USA only
- ☐ In the rear on the roof

#### 2 - Satellite Radio -R146-

- ☐ USA only
- ☐ Through MY 2009
- ☐ Refer to  
⇒ [“1.18 Satellite Radio R146”, page 56](#) .

#### 3 - Radio/Navigation Display Unit Control Module -J503-

- ☐ RNS-MFD 2 DVD. Refer to  
⇒ [“1.16.7 RNS-MFD 2 DVD”, page 51](#) .
- ☐ RNS 510. Refer to  
⇒ [“2.27 RNS 510”, page 141](#) .

#### 4 - Radio/Navigation Display Unit Control Module -J503-

- ☐ RNS 300. Refer to  
⇒ [“2.21 RNS 300”, page 119](#) .
- ☐ RNS 310. Refer to  
⇒ [“2.22 RNS 310”, page 121](#) .

#### 5 - Radio -R-

- ☐ Premium 7. Refer to  
⇒ [“1.15.8 Premium 7”, page 27](#) .
- ☐ Premium 8. Refer to  
⇒ [“1.15.9 Premium 8”, page 29](#) .

#### 6 - Radio -R-

- ☐ RCD 300. Refer to ⇒ [“2.15 RCD 300”, page 95](#) .
- ☐ RCD 310. Refer to ⇒ [“1.15.6 RCD 310”, page 22](#) .
- ☐ RCD 500. Refer to ⇒ [“2.20 RCD 500”, page 116](#) .
- ☐ RCD 510. Refer to ⇒ [“2.25 RCD 510”, page 133](#) .

#### 7 - Radio -R-

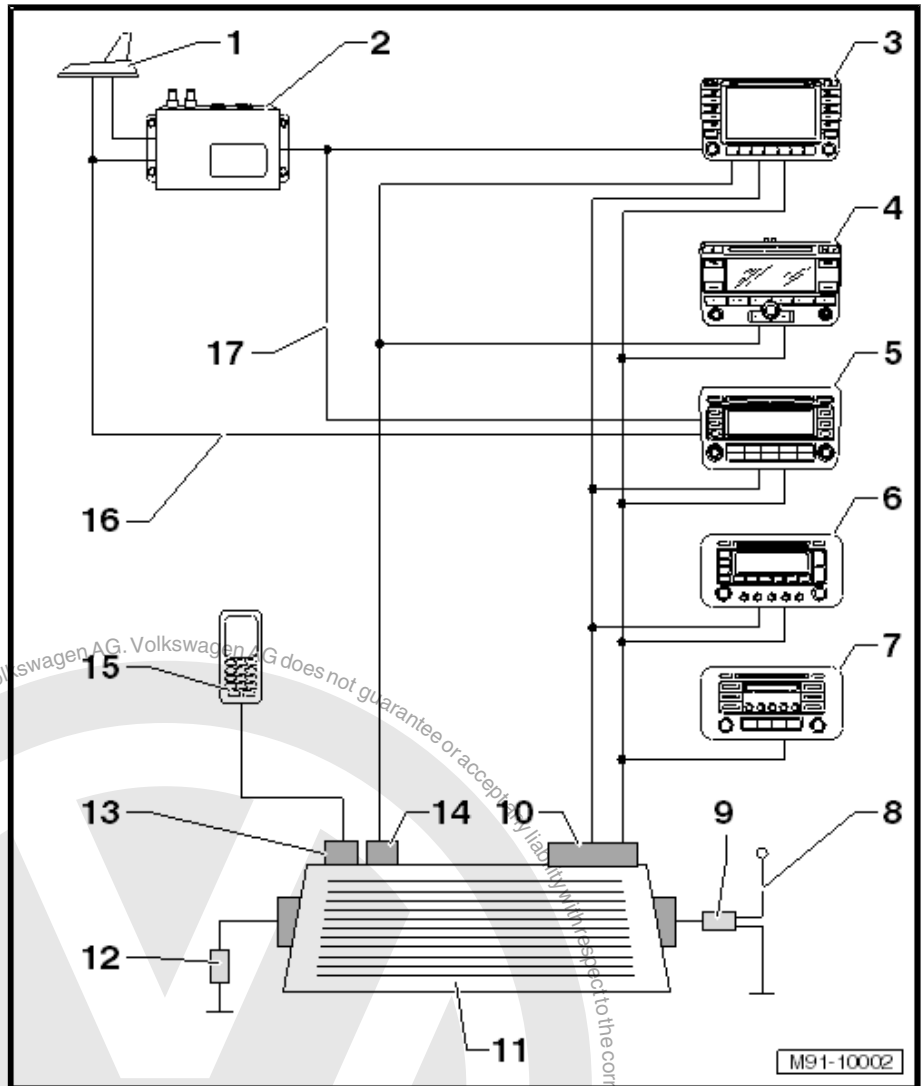
- ☐ Low Entry. Refer to ⇒ [“1.15.1 Low Entry”, page 12](#) .
- ☐ RCD 210. Refer to ⇒ [“2.14 RCD 210”, page 91](#) .

#### 8 - Connection Rear Window Defogger Relay -J9-

- ☐ Refer to Wiring diagrams, Troubleshooting & Component locations

#### 9 - FM Frequency Filter In Positive Wire -R179-

- ☐ Connected inside the wiring harness Rear Window Defogger -Z1-
- ☐ At the top of the left C-pillar





**10 - Right Antenna Module -R109-**

- ☐ AM/FM
- ☐ optional FM2/DAB/auxiliary heater remote control (Telestart)
- ☐ On the upper rear window

**11 - Rear Window with Antenna -R11- / Radio Antenna 2 -R93- / Heated Rear Window -Z1-**

- ☐ Refer to Wiring diagrams, Troubleshooting & Component locations

**12 - FM Frequency Filter In Negative Wire -R178-**

- ☐ Connected inside the wiring harness Rear Window Defogger -Z1-
- ☐ At the top of the right C-pillar

**13 - Telephone Antenna -R65-**

- ☐ On the upper rear window

**14 - GPS Antenna -R50-**

- ☐ On the upper rear window

**15 - Cellular Telephone -R54-**

- ☐ Telephone system. Refer to ⇒ ["1.19 Telephone Systems", page 57](#)

**16 - Antenna Wire (SAT)**

- ☐ From Satellite Antenna -R170- for Premium 8
- ☐ From MY 2010

**17 - Connection**

- ☐ From Satellite Radio -R146- for Premium 7
- ☐ Through MY 2009





## 2.2.2 Antenna System Component Location

### 1 - Right Antenna Module - R109-

- ❑ Removing and installing. Refer to  
⇒ ["5.2.1 Right Antenna Module R109"](#),  
page 174 .

### 2 - GPS Antenna -R50-

- ❑ Removing and installing. Refer to  
⇒ ["5.2.2 GPS Antenna R50"](#), page 175 .

### 3 - Telephone Antenna -R65-

- ❑ Removing and installing. Refer to  
⇒ ["5.2.3 Telephone Antenna R65"](#), page 176 .

### 4 - FM Frequency Filter In Positive Wire -R179-

- ❑ Removing and installing. Refer to  
⇒ ["5.2.5 FM Frequency Filter In Positive Wire R179"](#), page 178 .

### 5 - Nut

- ❑ 2 Nm

### 6 - Nut

- ❑ 7 Nm

### 7 - Satellite Antenna -R170-

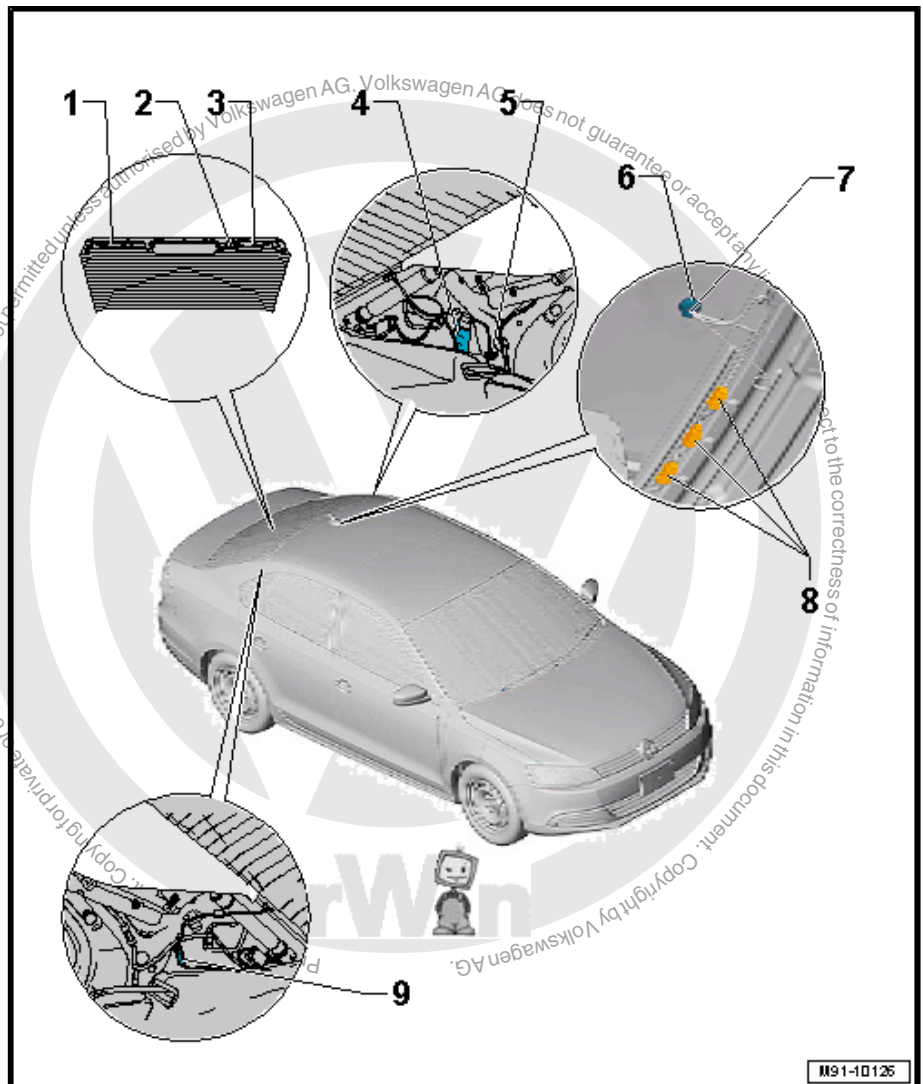
- ❑ Removing and installing. Refer to  
⇒ ["5.2.4 Satellite Antenna R170"](#), page 177 .

### 8 - Antenna wire couplings

- ❑ Refer to Wiring diagrams, Troubleshooting & Component locations

### 9 - FM Frequency Filter In Negative Wire -R178-

- ❑ Removing and installing. Refer to ⇒ ["5.2.6 FM Frequency Filter In Negative Wire R178"](#), page 179 .



M91-10126



## 2.3 Antenna Systems

⇒ [“2.3.1 Antenna System Overview, through MY 2009”, page 68](#)

⇒ [“2.3.2 Antenna System Overview, from MY 2010”, page 70](#)

⇒ [“2.3.3 Antenna System Component Location”, page 71](#)

### 2.3.1 Antenna System Overview, through MY 2009

#### 1 - Roof Antenna

- ❑ AM/FM/GSM/GPS/SAT/DAB/auxiliary heater remote start (Tel-estart)



#### Note

*The AM/FM antenna is installed in either the roof antenna or the right rear side window, depending on the model.*

#### 2 - Radio/Navigation Display Unit Control Module -J503-

- ❑ RNS-MFD 2 DVD. Refer to ⇒ [“1.16.7 RNS-MFD 2 DVD”, page 51](#) .
- ❑ RNS 510. Refer to ⇒ [“2.27 RNS 510”, page 141](#) .

#### 3 - Radio/Navigation Display Unit Control Module -J503-

- ❑ RNS 300. Refer to ⇒ [“2.21 RNS 300”, page 119](#) .
- ❑ RNS 310. Refer to ⇒ [“2.22 RNS 310”, page 121](#) .

#### 4 - Radio -R-

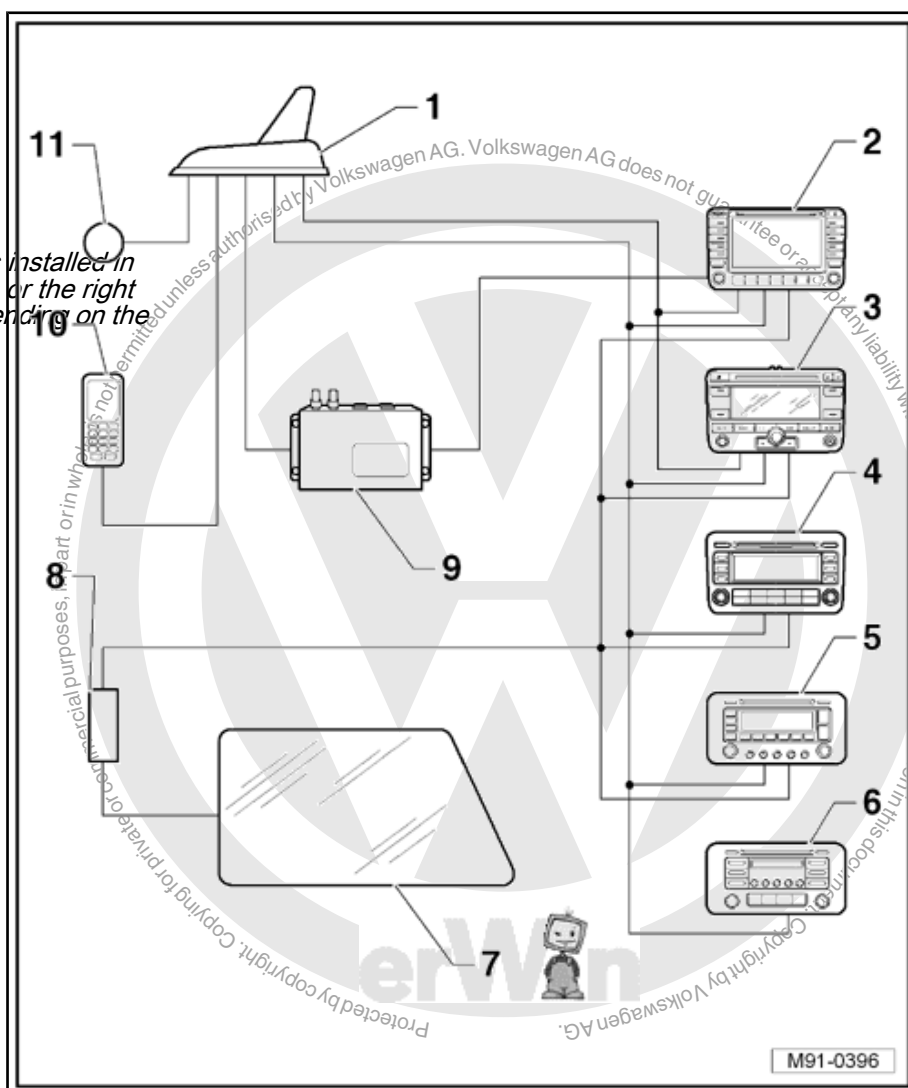
- ❑ Premium 7. Refer to ⇒ [“1.15.8 Premium 7”, page 27](#) .

#### 5 - Radio -R-

- ❑ RCD 300. Refer to ⇒ [“2.15 RCD 300”, page 95](#) .
- ❑ RCD 310. Refer to ⇒ [“1.15.6 RCD 310”, page 22](#) .
- ❑ RCD 500. Refer to ⇒ [“2.20 RCD 500”, page 116](#) .
- ❑ RCD 510. Refer to ⇒ [“2.25 RCD 510”, page 133](#) .

#### 6 - Radio -R-

- ❑ Low Entry. Refer to ⇒ [“1.15.1 Low Entry”, page 12](#) .
- ❑ RCD 210. Refer to ⇒ [“2.14 RCD 210”, page 91](#) .





## 7 - Right Side Window with Antenna -R11- /Left Side Window with Radio Antenna 2 -R93-



### Note

*The AM/FM antenna is installed in either the roof antenna or the right rear side window, depending on the model.*

## 8 - Antenna Amplifier -R24- / Antenna Amplifier 2 -R111-

- ☐ AM/FM ( Antenna Amplifier -R24- on the right side window)
- ☐ FM2 ( Antenna Amplifier 2 -R111- on the left side window)
- ☐ On the upper C-pillars



### Note

*The AM/FM antenna is installed in either the roof antenna or the right rear side window, depending on the model.*

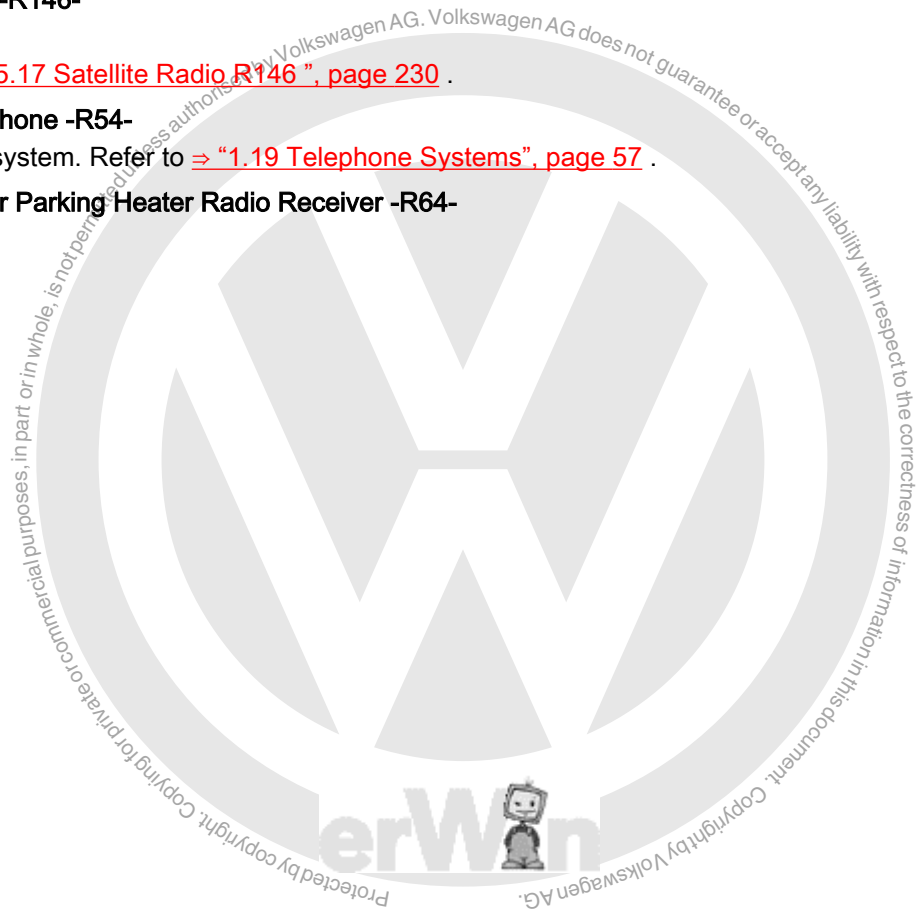
## 9 - Satellite Radio -R146-

- ☐ USA only
- ☐ Refer to ⇒ ["5.17 Satellite Radio R146", page 230](#) .

## 10 - Cellular Telephone -R54-

- ☐ Telephone system. Refer to ⇒ ["1.19 Telephone Systems", page 57](#) .

## 11 - Connection for Parking Heater Radio Receiver -R64-





## 2.3.2 Antenna System Overview, from MY 2010

### 1 - Roof Antenna

- ❑ GSM/GPS/SAT/auxiliary heater remote control (Telestart)

### 2 - Radio/Navigation Display Unit Control Module -J503-

- ❑ RNS 510. Refer to ➤ ["2.27 RNS 510", page 141](#) .

### 3 - Radio/Navigation Display Unit Control Module -J503-

- ❑ RNS 310. Refer to ➤ ["2.22 RNS 310", page 121](#) .

### 4 - Radio -R-

- ❑ Premium 8. Refer to ➤ ["2.25 RCD 510", page 133](#) .
- ❑ RCD 510. Refer to ➤ ["2.25 RCD 510", page 133](#) .

### 5 - Radio -R-

- ❑ RCD 210. Refer to ➤ ["2.14 RCD 210" page 91](#) .
- ❑ RCD 310. Refer to ➤ ["1.15.6 RCD 310", page 22](#) .

### 6 - Antenna Amplifier -R24-

- ❑ AM/FM
- ❑ At the top of the right C-pillar

### 7 - Antenna Amplifier 2 -R111-

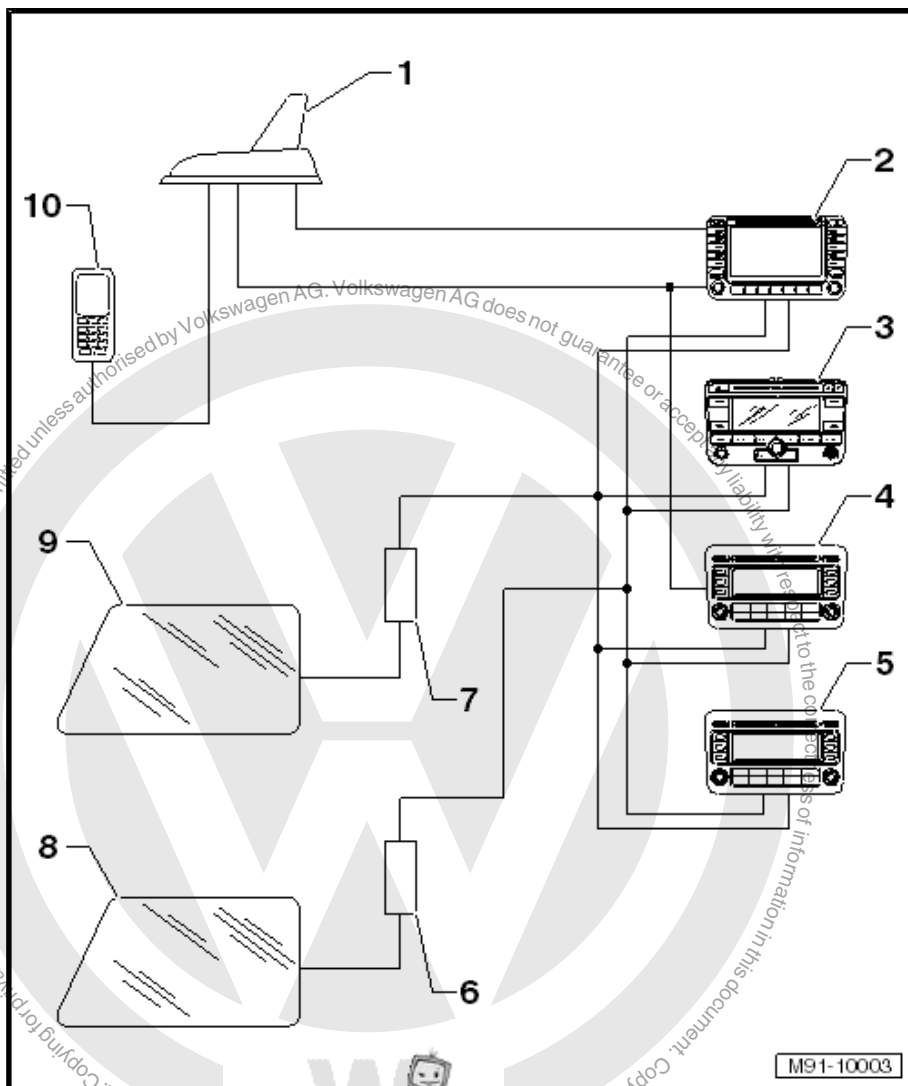
- ❑ FM2/optional DAB
- ❑ At the top of the left C-pillar

### 8 - Right Side Window with Antenna -R11-

### 9 - Left Side Window with Radio Antenna 2 -R93-

### 10 - Cellular Telephone -R54-

- ❑ Telephone system. Refer to ➤ ["1.19 Telephone Systems", page 57](#) .





### 2.3.3 Antenna System Component Location

#### 1 - Antenna wire couplings

- ❑ Refer to Wiring diagrams, Troubleshooting & Component locations

#### 2 - Roof Antenna

- ❑ Removing and installing. Refer to  
⇒ ["5.3.2 Roof Antenna", page 180](#).

#### 3 - Nut

- ❑ 7 Nm

#### 4 - Screw

- ❑ 2 Nm

#### 5 - Antenna Amplifier -R24-

- ❑ Removing and installing. Refer to  
⇒ ["5.3.1 Antenna Amplifiers R24 / R111", page 180](#).

#### 6 - Antenna connector

- ❑ For the Antenna Amplifier -R24- AM/FM

#### 7 - Antenna connector

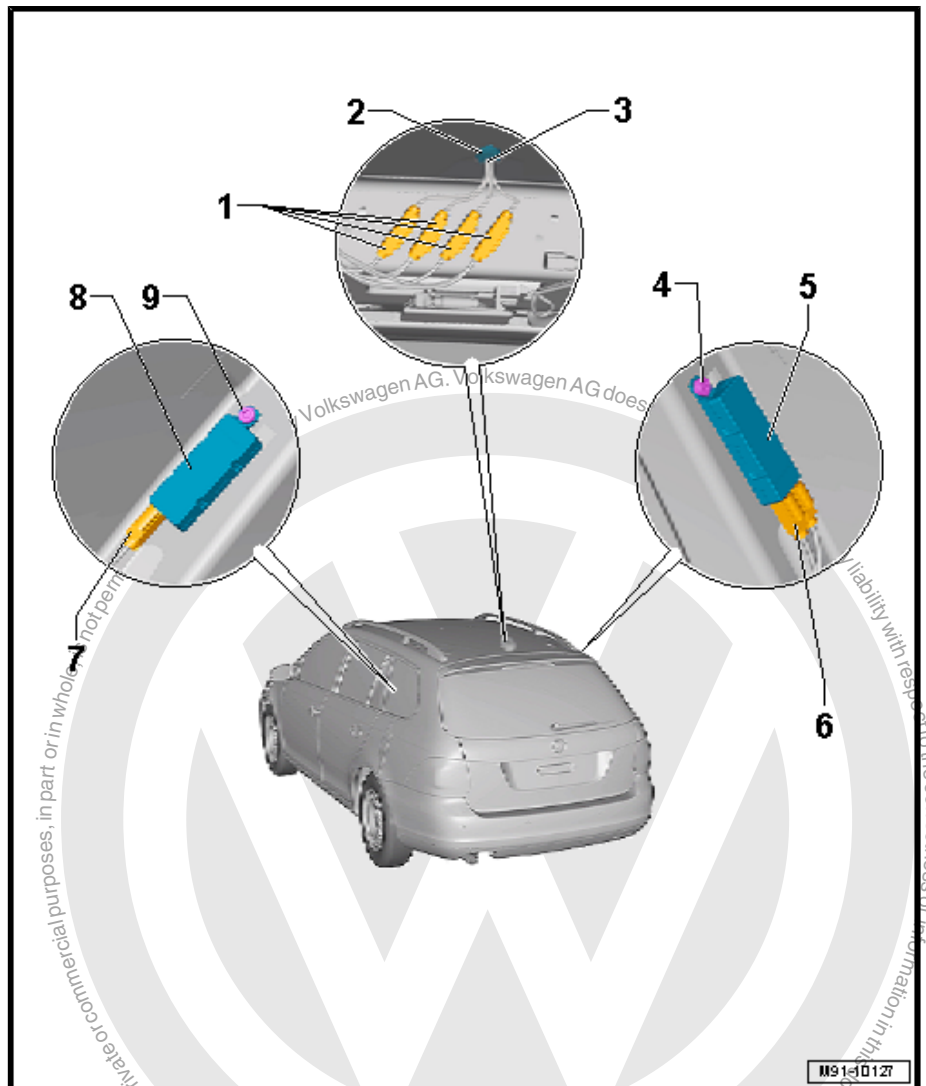
- ❑ For the Antenna Amplifier 2 -R111- FM2/optional DAB

#### 8 - Antenna Amplifier 2 -R111-

- ❑ Removing and installing. Refer to  
⇒ ["5.3.1 Antenna Amplifiers R24 / R111", page 180](#).

#### 9 - Screw

- ❑ 2 Nm

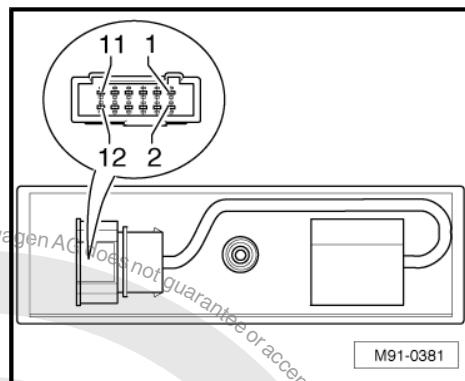




## 2.4 CD Changer -R41- Connector

### 12-pin Connector

- 1 - DATA IN
- 2 - CLOCK
- 3 - Terminal 31
- 4 - DATA OUT
- 5 - Not used
- 6 - Terminal 30
- 7 - Right audio output
- 8 - Control wire
- 9 - Audio ground
- 10 - Left audio output
- 11 - Not used
- 12 - Terminal 58



## 2.5 Cellular Telephone and Two-Way Radios Battery/Radio/Fuses/Wiring Harnesses Overview



### 1 - Positive connection

- ☐ Red wire with suitable connection

### 2 - To terminal 15a

- ☐ Connection to terminal 15a, refer to Wiring diagrams, Troubleshooting & Component locations
- ☐ Ensure wire is protected by fuse
- ☐ Fuse: maximum 15 A

### 3 - Antenna ground

- ☐ Ensure correct ground connection to body
- ☐ Antenna location must be treated with suitable corrosion protection

### 4 - Transmitting/receiving antenna

- ☐ Installed locations, refer to  
⇒ ["3.2 Cellular Telephone and Two-Way Radios, Transmitted Output, Antenna Installation Locations", page 163](#)

### 5 - Shielded antenna wire

- ☐ Wire with coaxial connector

### 6 - Radio

### 7 - Wiring harness

- ☐ Power supply (+) red wire with 2.5 mm<sup>2</sup> cross section
- ☐ Power supply (-) brown wire with 2.5 mm<sup>2</sup> cross section
- ☐ Wire to terminal 15a, black wire, 1.5 mm<sup>2</sup> cross section

### 8 - Fuse holder

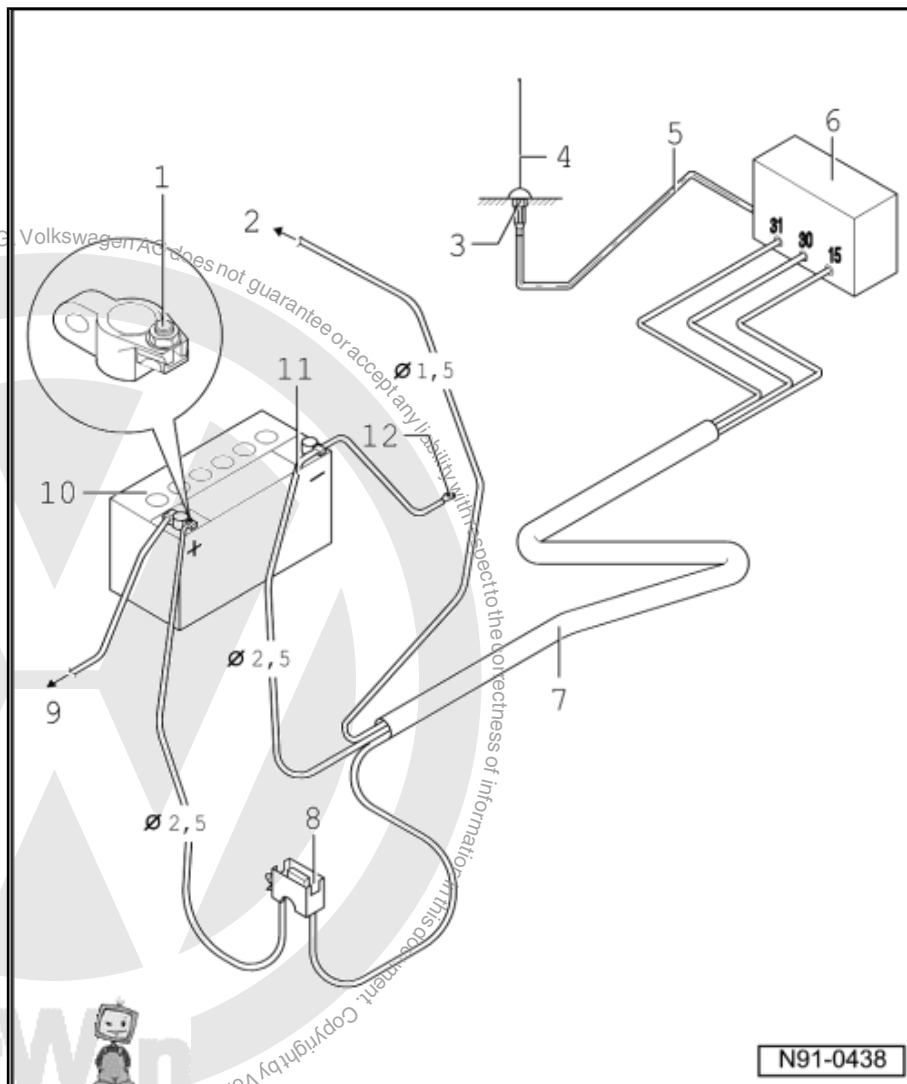
- ☐ Attach next to the battery

### 9 - To the starter

### 10 - Battery

### 11 - Negative wire

### 12 - Body ground







## 2.6 Low Entry Radio

⇒ [“2.6.1 System Overview”, page 74](#)

⇒ [“2.6.2 Connectors Overview”, page 75](#)

### 2.6.1 System Overview

#### 1 - Radio

- ❑ Connectors, refer to  
⇒ [“2.6.2 Connectors Overview”, page 75](#)
- ❑ Removing and installing, refer to  
⇒ [“5.15.1 Low Entry”, page 195](#)

#### 2 - Antenna -R11-

- ❑ For the antenna on the sedan, refer to  
⇒ [“2.2 Antenna Systems”, page 65](#)
- ❑ For the antenna on the wagon, refer to  
⇒ [“2.3 Antenna Systems”, page 68](#)

#### 3 - Rear treble speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems, refer to  
⇒ [“5.19.5 Treble Speaker, Rear”, page 235](#)

#### 4 - Rear bass speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems, refer to  
⇒ [“5.19.2 Bass, Rear”, page 232](#)

#### 5 - Front bass speaker

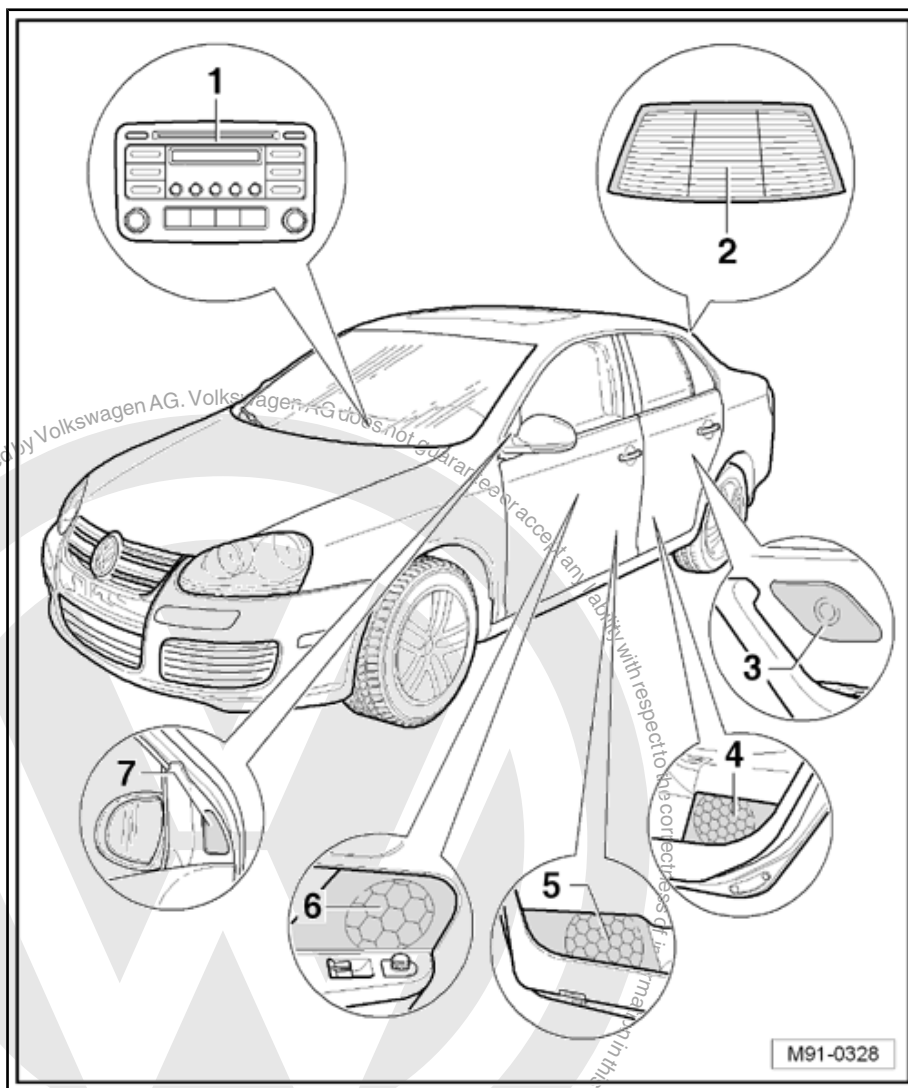
- ❑ Inside the left and right front doors
- ❑ Speaker systems, refer to ⇒ [“5.19.1 Bass, Front”, page 232](#)

#### 6 - Front midrange speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems, refer to ⇒ [“5.19.3 Mid-Range, Front”, page 233](#)

#### 7 - Front treble speaker

- ❑ Inside the triangular mirror cover on left and right front doors
- ❑ Speaker systems, refer to ⇒ [“5.19.4 Treble, Front R20 / R22”, page 234](#)







## 2.6.2 Connectors Overview

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 75](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 76](#)

### 3 - 12-Pin Connector 3, Telephone

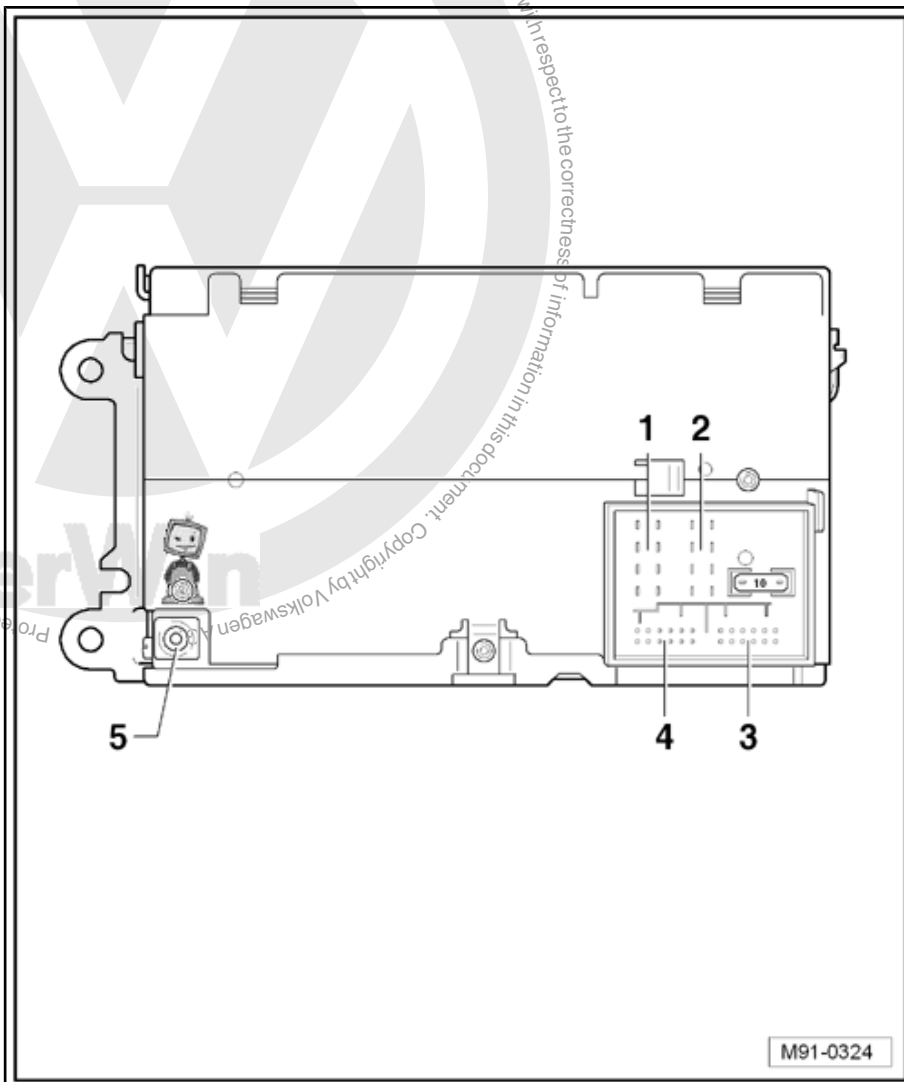
- ☐ Connector assignment  
⇒ [page 76](#)

### 4 - Multi-Pin Connector 4

- ☐ Not Assigned

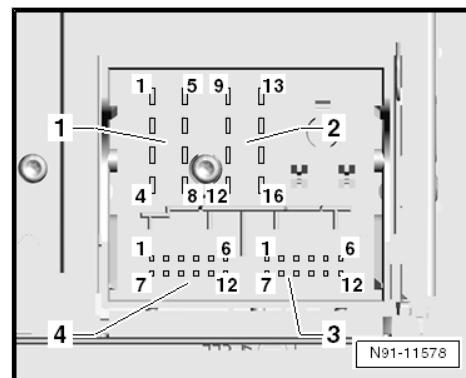
### 5 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#).



### 8-Pin Connector 1, Speaker Outputs

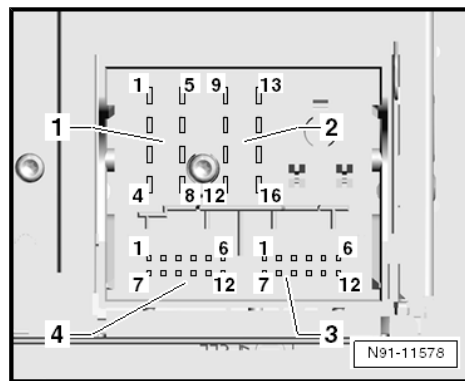
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)





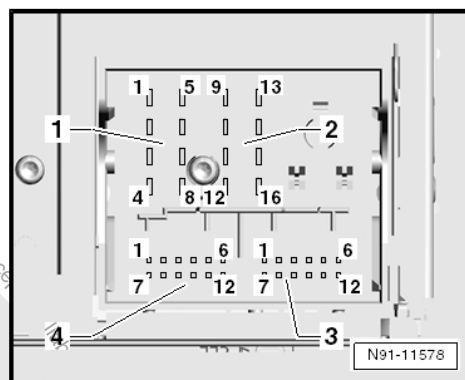
## 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 13 - Radio Switch on Signal
- 14 - Anti-Theft Warning System, Terminal 30
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



## 12-Pin Connector 3, Telephone

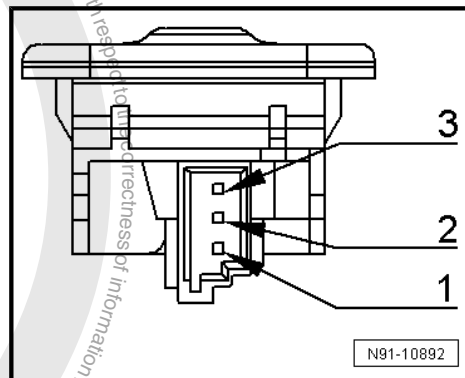
- 6 - Telephone, Low Frequency Signal Input (-)
- 12 - Telephone, Low Frequency Signal Input (+)



## 2.7 External Audio Source -R199- Connector

### 3-pin Connector

- 1 - Audi signal, right
- 2 - Audio ground
- 3 - Audi signal, right

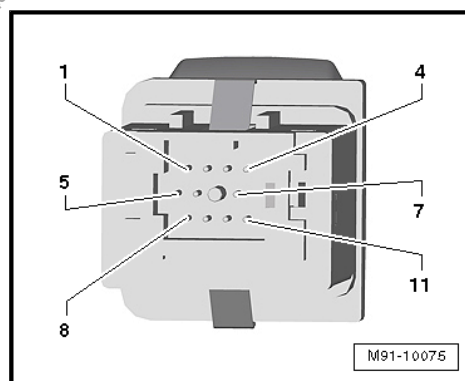


## 2.8 External Audio Source Connection 2 - R231- (USB Port), Connector

There are two versions: 11-pin and 4-pin

### 11-pin Connector

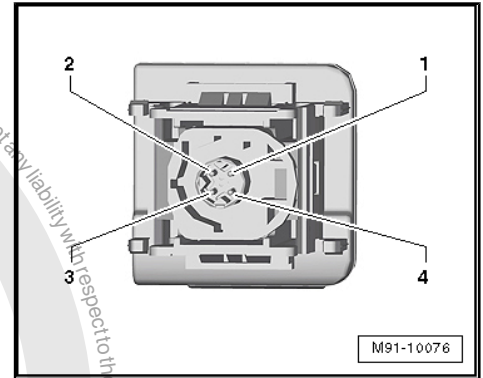
- 1 - VCC (+5 V)
- 2 - D (+)
- 3 - D (-)
- 4 - Ground
- 5 - Screen ground





#### 4-pin Connector

- 1 - D (+)
- 2 - VCC (+5 V)
- 3 - D (-)
- 4 - Ground



## 2.9 iPod Baseplate -R192-

⇒ ["2.9.1 Overview", page 77](#)

⇒ ["2.9.2 Connectors", page 78](#)

### 2.9.1 Overview

#### 1 - iPod

#### 2 - Adapter

- ☐ Adapting the baseplate to the iPod
- ☐ Adapter, removing and installing. Refer to  
⇒ ["5.10 iPod Baseplate R192 Adapter", page 189](#).

#### 3 - iPod Baseplate -R192-

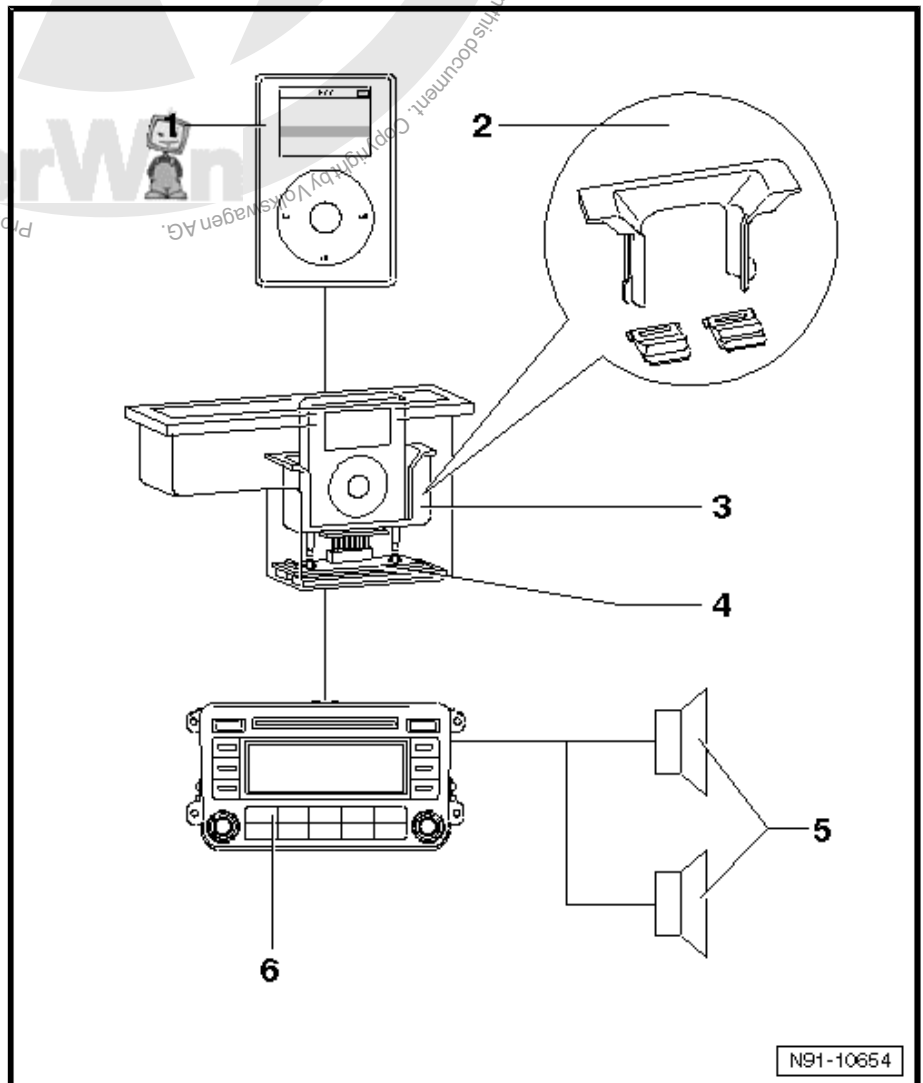
- ☐ in center console
- ☐ Removing and installing. Refer to  
⇒ ["5.11 iPod Baseplate R192", page 190](#).

#### 4 - Electronics

- ☐ Cannot be replaced individually
- ☐ Connector assignment. Refer to  
⇒ ["2.9.2 Connectors", page 78](#).

#### 5 - Speaker Systems

#### 6 - Radio/RNS

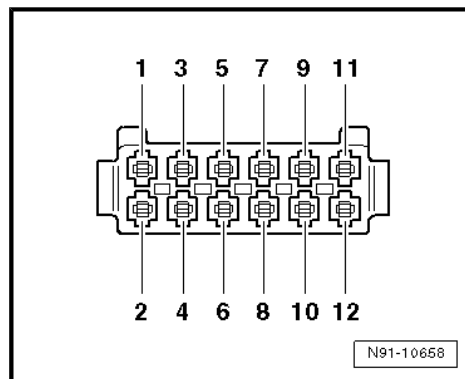




## 2.9.2 Connectors

### 12-pin Connector

- 1 - DATA IN
- 2 - CLOCK
- 3 - Terminal 31
- 4 - DATA OUT
- 5 - Not used
- 6 - Terminal 30
- 7 - Right audio
- 8 - Control signal from the radio
- 9 - Audio ground
- 10 - Left audio
- 11 - Not used
- 12 - Not used



## 2.10 MFD 2 Navigation Radio

⇒ ["2.10.1 Component Location Overview", page 78](#)

⇒ ["2.10.2 Connector Overview", page 81](#)

### 2.10.1 Component Location Overview



### 1 - 18-Pin Connector 1, Video and LF Input

- ☐ Connector assignment  
⇒ [page 80](#)

### 2 - GPS Antenna -R50- connection

- ☐ GPS
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

### 3 - 8-Pin Connector 3, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 80](#)

### 4 - 8-Pin Connector 4, Voltage Supply, CAN Bus

- ☐ Connector assignment  
⇒ [page 80](#)

### 5 - 12-pin connector 5, telephone and amplifier

- ☐ Connector assignment  
⇒ [page 81](#)

### 6 - 12-Pin Connector 6, CD Changer -R41- , Satellite Radio -R146-

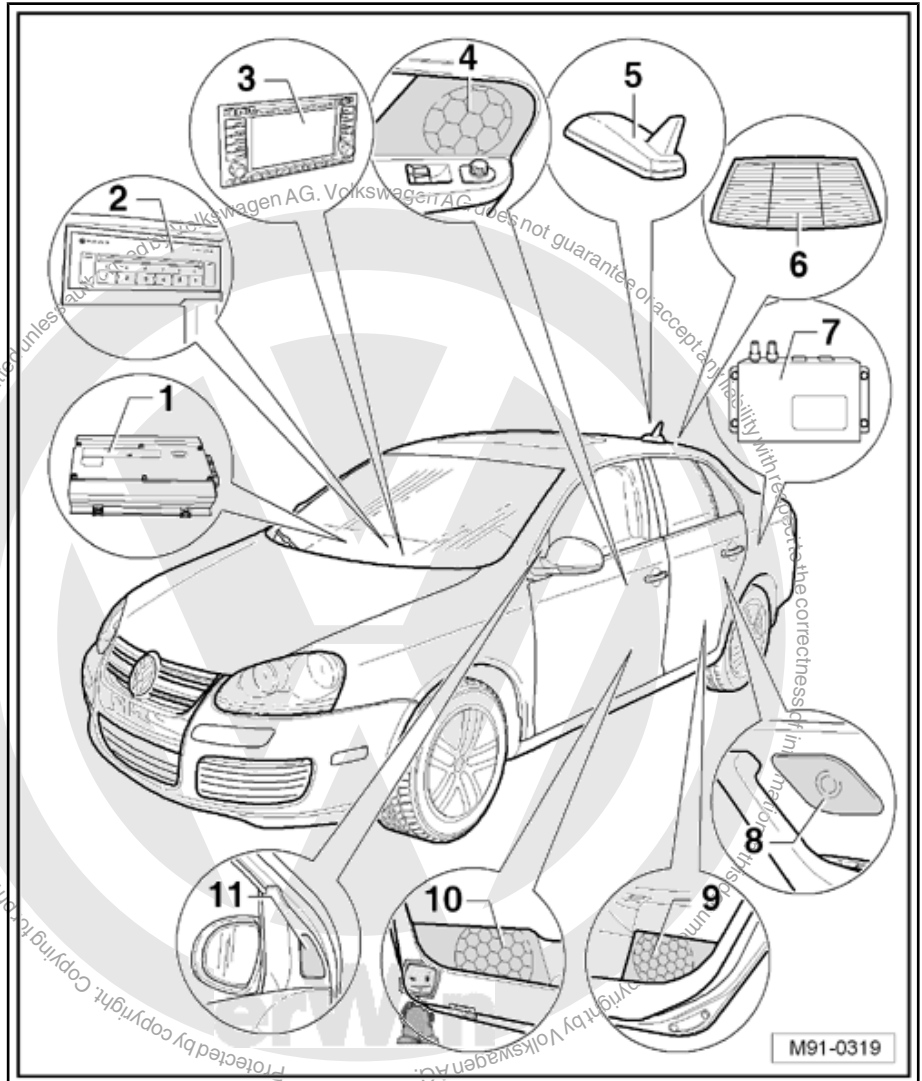
- ☐ Connector assignment  
⇒ [page 81](#)

### 7 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .

### 8 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .

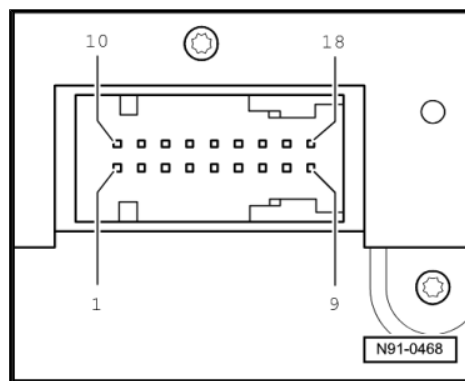




### 18-Pin Connector 1, Video and LF Input

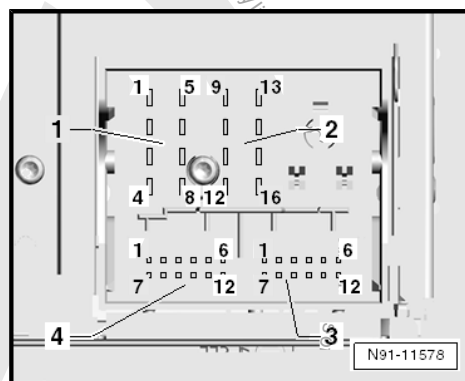
This connector is used only if the vehicle has a TV Tuner -R78- .

- 1 - Not Assigned
- 2 - Video Input LF Ground
- 3 - Video Input LF Ground
- 4 - Video Input LF Ground
- 5 - Video Input Ground
- 6 - Video Switching Signal
- 7 - Video Input Ground
- 8 - Video Input Ground
- 9 - Video Input Ground
- 10 - Not Assigned
- 11 - Video Input LF Left
- 12 - Video Input LF Right
- 13 - Ground Shield
- 14 - Video Input Sync
- 15 - 50 Hertz/ 60 Hertz
- 16 - Video Input Blue
- 17 - Video Input Green
- 18 - Video Input Red



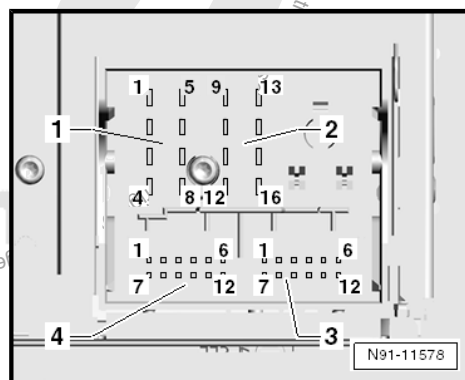
### 8-Pin Connector 3, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



### 8-Pin Connector 4, CAN Bus, Voltage Supply

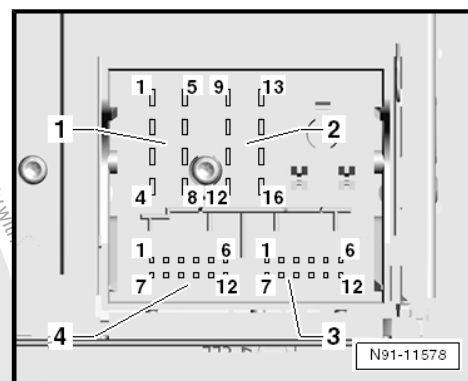
- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 13 - Radio -R- Switch on Signal
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system





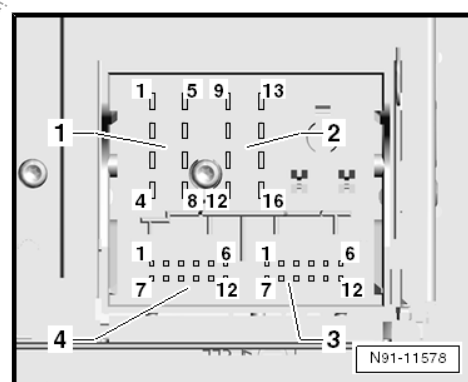
## 12-pin connector 5, telephone and amplifier

- 1 - Not Assigned
- 2 - Not Assigned
- 3 - Left Audio Output
- 4 - Not Assigned
- 5 - Navigation Language (+)
- 6 - Telephone, Low Frequency Signal Input (-)
- 7 - Not Assigned
- 8 - Audio Output Ground
- 9 - Right Audio Output
- 10 - Not Assigned
- 11 - Navigation Language (-)
- 12 - Telephone, Low Frequency Signal Input (+)



## 12-Pin Connector 6, CD Changer -R41- , Satellite Radio -R146-

- 1 - Audio Left from the Satellite Radio -R146-
- 2 - Audio Ground from the CD Changer -R41-
- 3 - Audio Ground from the Satellite Radio -R146-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Terminal 30 to the Satellite Radio -R146-
- 6 - CD data out to the CD Changer -R41-
- 7 - Audio Right from the Satellite Radio -R146-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.10.2 Connector Overview



### 1 - 18-pin Connector 1, Video and LF Input

- ❑ Terminal assignment, refer to  
⇒ [“2.10.3 18-pin Connector 1, Video and LF Input”, page 83](#)

### 2 - Navigation system antenna -R50- connection

- ❑ GPS
- ❑ Antenna, sedan, refer to  
⇒ [“2.2 Antenna Systems”, page 65](#)
- ❑ Antenna, wagon, refer to  
⇒ [“2.3 Antenna Systems”, page 68](#)

### 3 - 8-pin connector 3, speaker outputs

- ❑ Terminal assignment, refer to  
⇒ [“2.10.4 8-pin Connector 3, Speaker Outputs”, page 83](#)

### 4 - 8-pin connector 4, voltage supply, CAN Bus

- ❑ Terminal assignment, refer to  
⇒ [“2.10.5 8-Pin Connector 4, CAN Bus, Voltage Supply”, page 83](#)

### 5 - 12-pin connector 5, telephone and amplifier

- ❑ Terminal assignment, refer to  
⇒ [“2.10.6 12-pin Connector 5, Telephone and Amplifier”, page 84](#)

### 6 - 12-pin Connector 6, CD changer -R41- / satellite radio -R146-

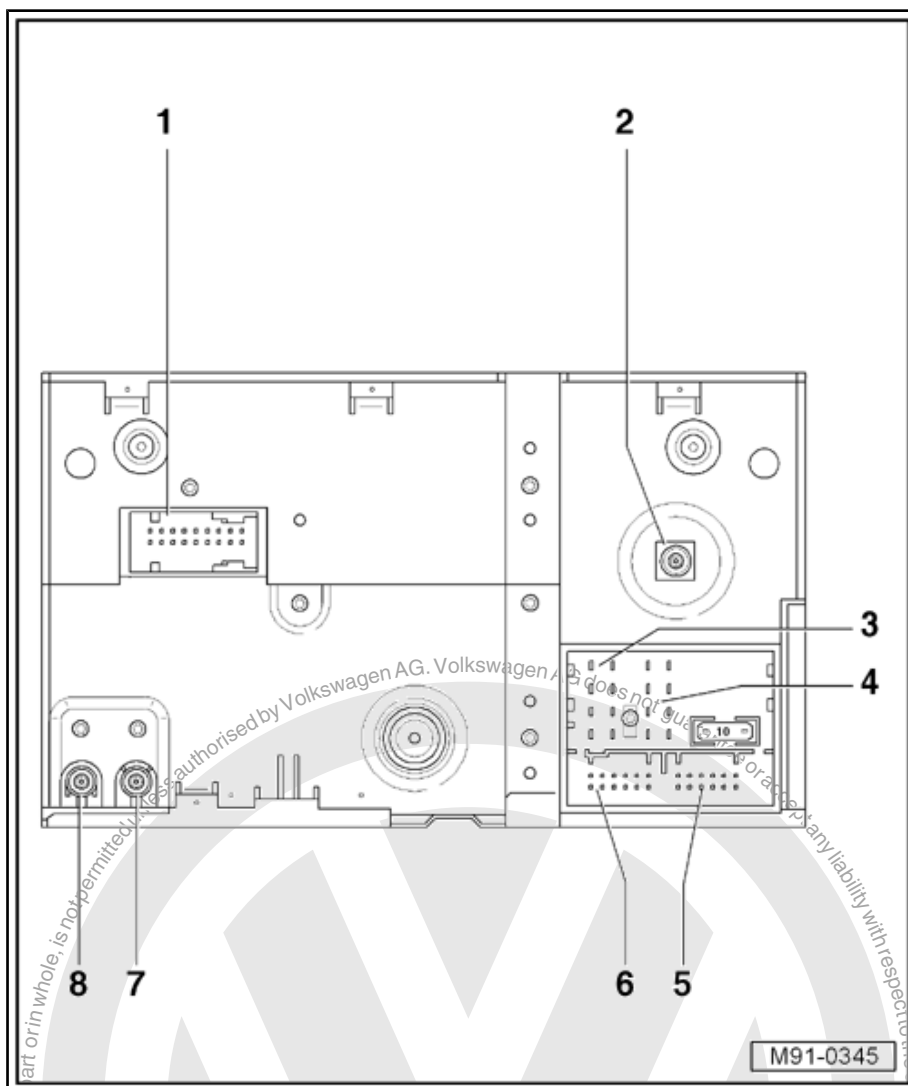
- ❑ Terminal assignment, refer to  
⇒ [“2.10.7 12-pin Connector 6, CD Changer R41 /Satellite Radio R146”, page 84](#)

### 7 - Antenna connection

- ❑ FM2
- ❑ Antenna, sedan, refer to ⇒ [“2.2 Antenna Systems”, page 65](#)
- ❑ Antenna, wagon, refer to ⇒ [“2.3 Antenna Systems”, page 68](#)

### 8 - Antenna connection

- ❑ AM/FM
- ❑ Antenna, sedan, refer to ⇒ [“2.2 Antenna Systems”, page 65](#)
- ❑ Antenna, wagon, refer to ⇒ [“2.3 Antenna Systems”, page 68](#)



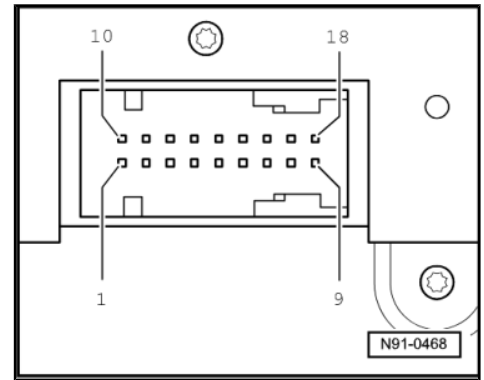




### 2.10.3 18-pin Connector 1, Video and LF Input

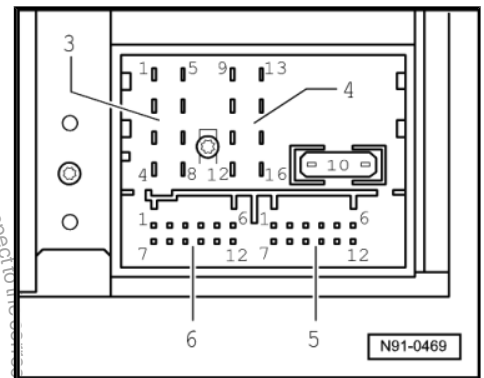
This connector is used only if the vehicle has a TV tuner -R78- .

- 1 - Not used
- 2 - Video input LF ground
- 3 - Video input LF ground
- 4 - Video input LF ground
- 5 - Video input ground
- 6 - Video switching signal
- 7 - Video input ground
- 8 - Video input ground
- 9 - Video input ground
- 10 - Not used
- 11 - Video input LF left
- 12 - Video input LF right
- 13 - Shielding Ground (GND)
- 14 - Video input sync
- 15 - 50 Hertz/ 60 Hertz
- 16 - Video input blue
- 17 - Video input green
- 18 - Video input red



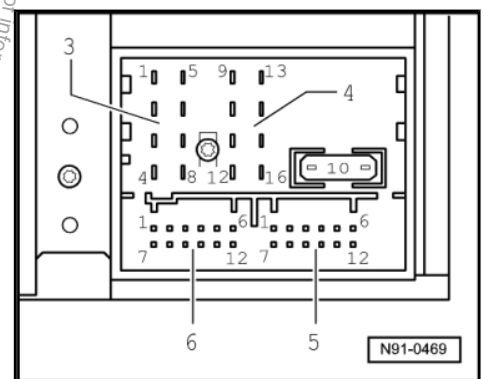
### 2.10.4 8-pin Connector 3, Speaker Outputs

- 1 - Speaker, right rear (+)
- 2 - Speaker, right front (+)
- 3 - Speaker, left front (+)
- 4 - Speaker, left rear (+)
- 5 - Speaker, right rear (-)
- 6 - Speaker, right front (-)
- 7 - Speaker, left front (-)
- 8 - Speaker, left rear (-)



### 2.10.5 8-Pin Connector 4, CAN Bus, Voltage Supply

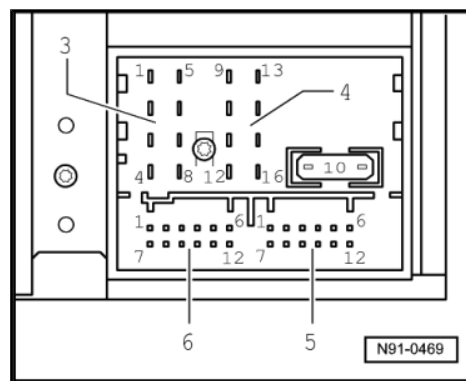
- 9 - CAN Bus, High
- 10 - CAN Bus, Low
- 11 - Telephone, mute
- 12 - Terminal 31
- 13 - Radio on
- 15 - Terminal 30
- 16 - Anti-theft warning system (SAFE), terminal 30





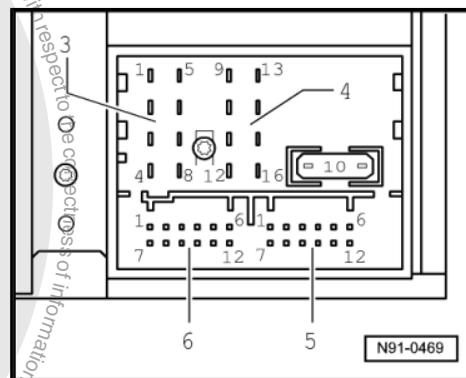
## 2.10.6 12-pin Connector 5, Telephone and Amplifier

- 1 - Not used
- 2 - Not used
- 3 - Line Out, left
- 4 - Not used
- 5 - Navigation language (+)
- 6 - Telephone, low frequency signal input (-)
- 7 - Not used
- 8 - Line Out, ground
- 9 - Line Out, right
- 10 - Not used
- 11 - Navigation language (-)
- 12 - Telephone, low frequency signal input (+)



## 2.10.7 12-pin Connector 6, CD Changer -R41- / Satellite Radio -R146-

- 1 - Audio left from the satellite radio
- 2 - Audio ground from the CD changer
- 3 - Audio ground from the satellite radio
- 4 - Terminal 30 to the CD changer
- 5 - Terminal 30 to the satellite radio
- 6 - DATA OUT to the CD changer
- 7 - Audio right from the satellite radio
- 8 - Left audio from the CD changer
- 9 - Right audio from the CD changer
- 10 - Control signal to the CD changer
- 11 - DATA IN from the CD changer
- 12 - CLOCK from the CD changer



## 2.11 Multimedia System Control Module -J650- Overview



## 1 - Speaker Systems

## 2 - Radio/RNS

## 3 - Multifunction Steering Wheel

## 4 - CAN Bus

## 5 - LF Wire

- ☐ External Audio Source Connection -R199-

## 6 - External Audio Source Connection -R199-

- ☐ in center console
- ☐ Refer to  
⇒ ["1.7 External Audio Source Connection -R199", page 7](#) .

## 7 - Input Devices

- ☐ MP3 player
- ☐ Memory sticks
- ☐ iPod

## 8 - Adapter Wire

- ☐ One for each device being connected

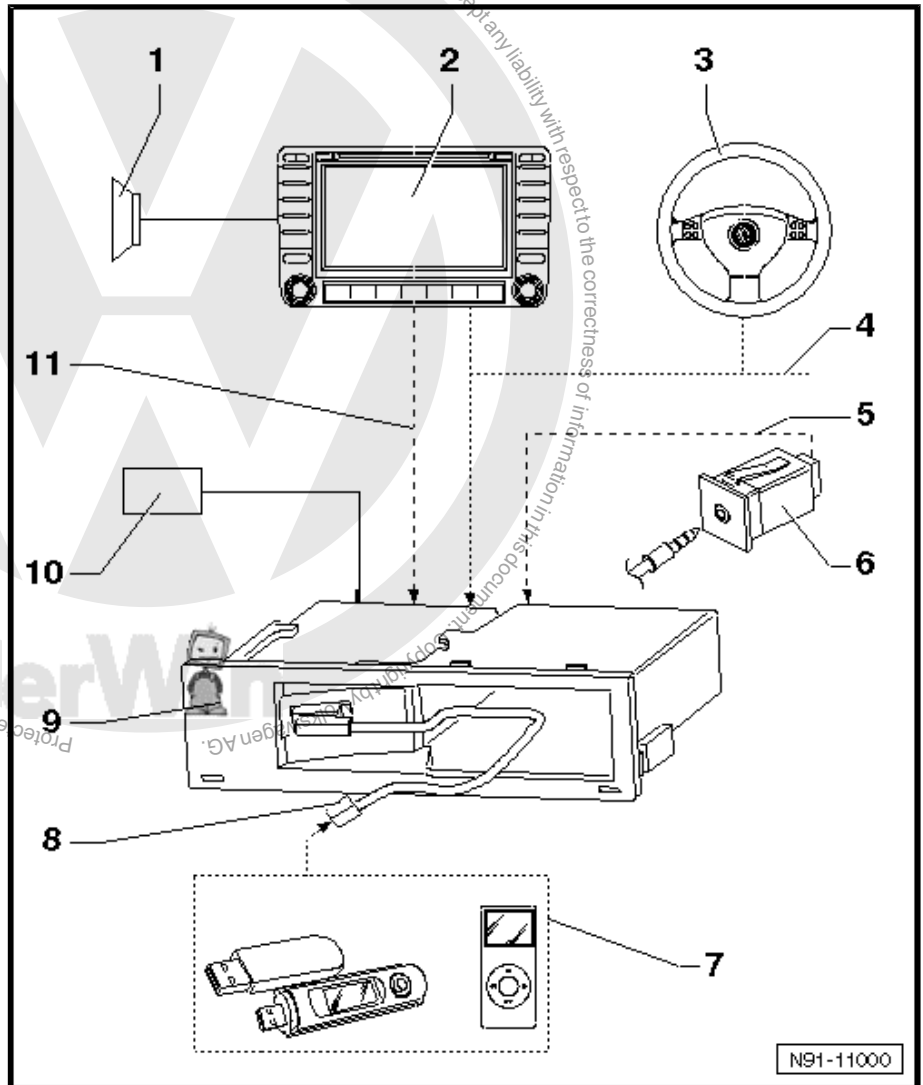
## 9 - Multimedia System Control Module -J650-

- ☐ Inside the center console/glove compartment
- ☐ Removing and installing. Refer to  
⇒ ["5.13 Multimedia System Control Module J650", page 193](#) .
- ☐ Coding. Refer to  
⇒ ["4.6 Multimedia System Control Module J650, Coding", page 166](#) .
- ☐ Output diagnostic test mode. Refer to  
⇒ ["4.7 Multimedia System Control Module J650, Output Diagnostic Test", page 167](#) .

## 10 - Power Supply Connection

## 11 - LF Wire

- ☐ Multimedia System Control Module -J650- for the radio/RNS



## Multimedia System Control Module -J650- Overview, UMI

The UHV High and the MDI are housed together near the UMI, Universal Media Interface. The Cellular Telephone -R54- is connected via Bluetooth.

The functions of the UHV High and MDI are combined in one device.



**1 - Speaker System**

**2 - Radio/Navigation Display  
Unit Control Module -J503-**

**3 - Multifunction Steering  
Wheel**

**4 - CAN Bus**

**5 - Telephone Microphone -  
R38-**

**6 - Adapter Wire**

- ☐ One for each device be-  
ing connected

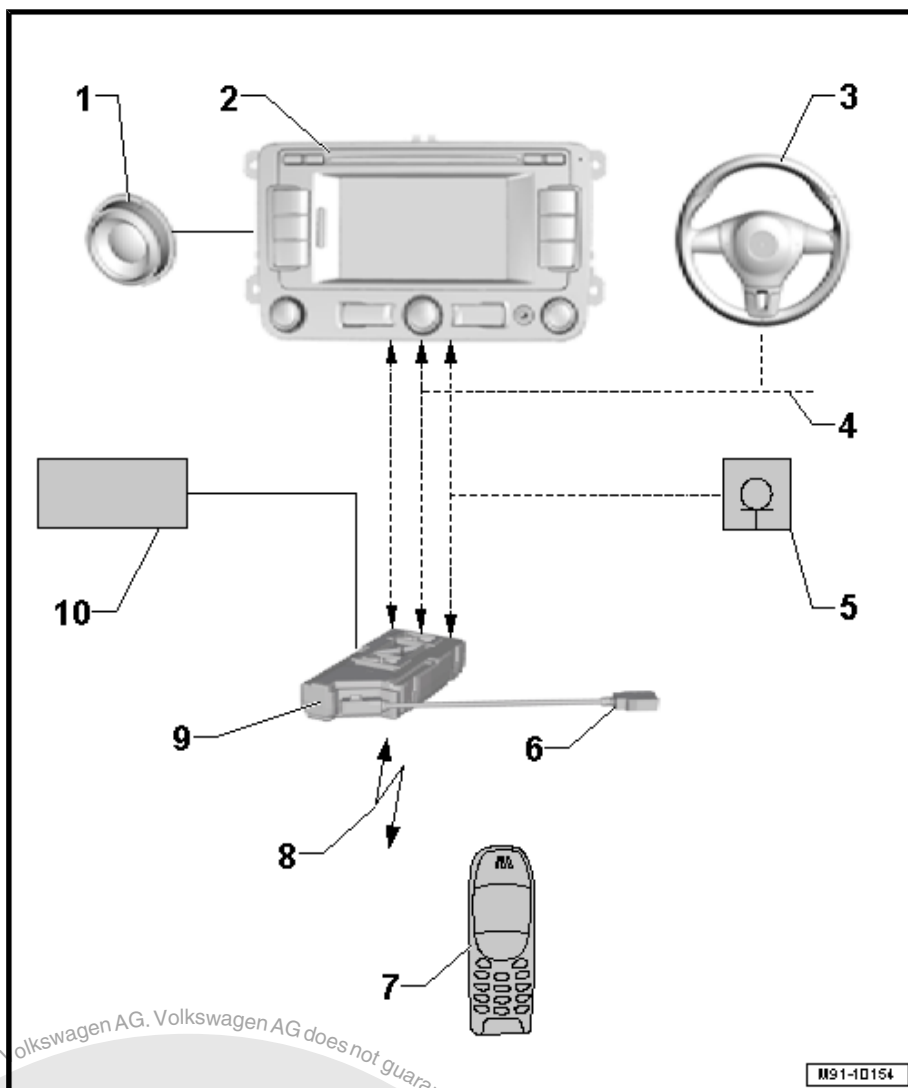
**7 - Cellular Telephone -R54-**

**8 - Bluetooth connection**

**9 - Multimedia System Control  
Module -J650- / Telephone  
Transceiver -R36-**

- ☐ Inside the center con-  
sole/glove compartment
- ☐ Removing and instal-  
ling. Refer to  
⇒ ["5.13 Multimedia Sys-  
tem Control Module  
J650", page 193](#) .

**10 - 54-Pin Connector**





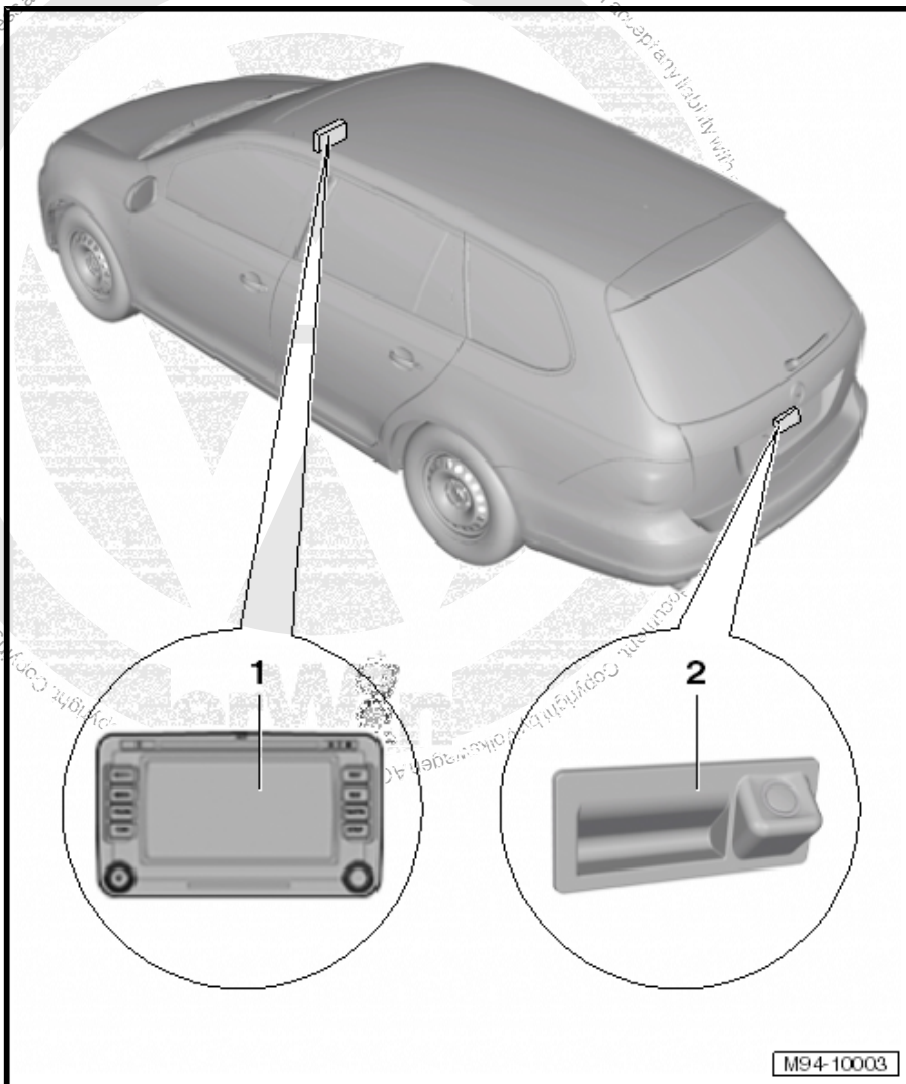
## 2.12 Rearview Camera System Component Location

### 1 - Radio/Navigation Display Unit Control Module -J503- (RNS)

- ☐ Inside the center of the instrument panel
- ☐ Refer to  
⇒ ["2.27 RNS 510", page 141](#) .

### 2 - Rearview Camera -R189-

- ☐ In the rear lid handle
- ☐ Removing and installing. Refer to  
⇒ ["5.14 Rearview Camera R189", page 194](#) .
- ☐ Tightening specification for the nuts: 6 Nm





## 2.13 Radio Premium 7

⇒ [“2.13.1 Component Location Overview”, page 88](#)

⇒ [“2.13.2 Connectors Overview”, page 89](#)

⇒ [“2.13.3 Antenna Connections”, page 91](#)

### 2.13.1 Component Location Overview

#### 1 - Radio

- ☐ Connectors, refer to  
⇒ [“2.13.2 Connectors Overview”, page 89](#)
- ☐ Removing and installing, refer to  
⇒ [“5.15.8 Premium 7” page 210](#)
- ☐ Radio functions, adapting, refer to  
⇒ [“4.8 Premium 7 Components, Adapting”, page 167](#)
- ☐ Electronic anti-theft protection, deactivating, refer to  
⇒ [page 27](#)

#### 2 - Amplifier -R12-

- ☐ Under the left front seat
- ☐ Refer to  
⇒ [“1.1 Amplifier R12”, page 2](#)

#### 3 - Satellite Antenna -R170-

- ☐ In the rear on the roof
- ☐ For the antenna on the sedan, refer to  
⇒ [“2.2 Antenna Systems”, page 65](#)
- ☐ For the antenna on the wagon, refer to  
⇒ [“2.3 Antenna Systems”, page 68](#)

#### 4 - Antenna -R11- / Radio Antenna 2 -R93-

- ☐ For the antenna on the sedan, refer to  
⇒ [“2.2 Antenna Systems”, page 65](#)
- ☐ For the antenna on the wagon, refer to  
⇒ [“2.3 Antenna Systems”, page 68](#)

#### 5 - Satellite Radio -R146-

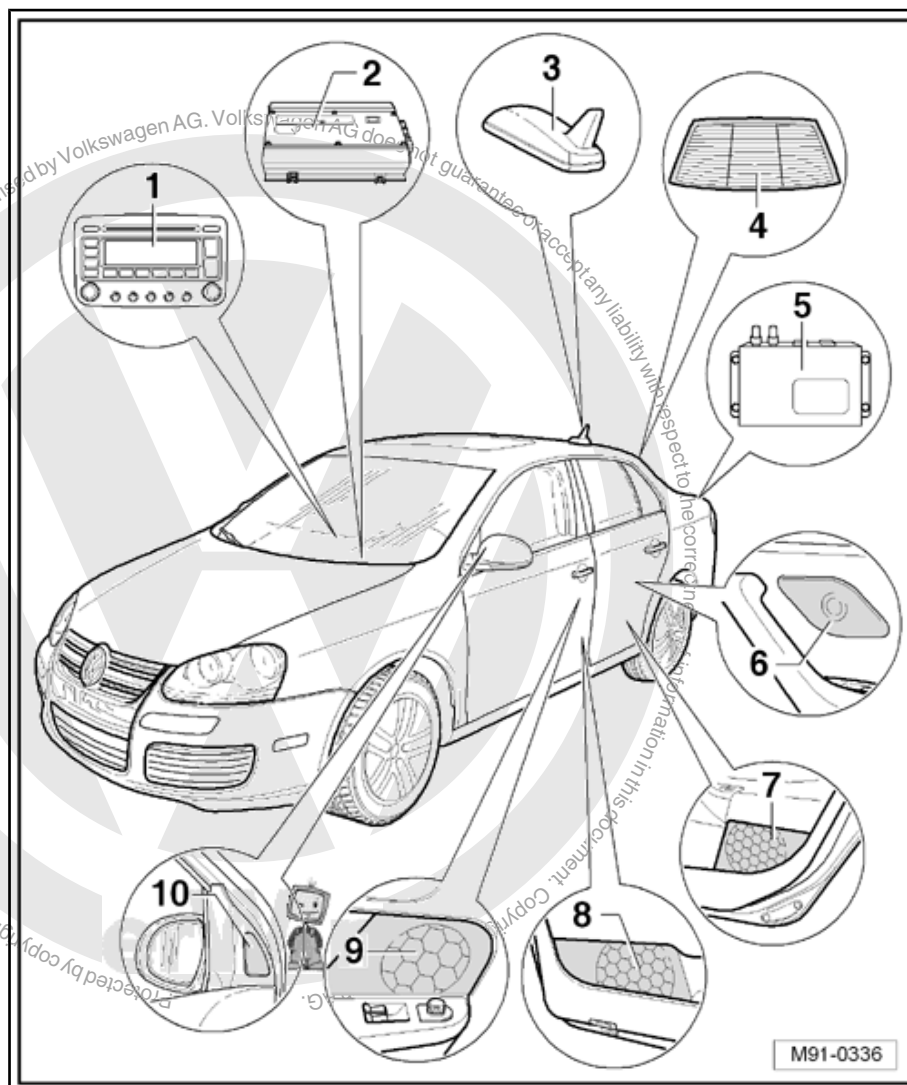
- ☐ Under the rear shelf inside the luggage compartment (sedan models)
- ☐ Under the right front seat (wagon models)
- ☐ Refer to  
⇒ [“1.18 Satellite Radio R146”, page 56](#)

#### 6 - Rear treble speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to  
⇒ [“5.19.5 Treble Speaker, Rear”, page 235](#)

#### 7 - Rear bass speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to  
⇒ [“5.19.2 Bass, Rear”, page 232](#)





## 8 - Front bass speaker

- ☐ inside the left and right front doors
- ☐ speaker systems, refer to ➤ ["5.19.1 Bass, Front", page 232](#)

## 9 - Front midrange speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems, refer to ➤ ["5.19.3 Mid-Range, Front", page 233](#)

## 10 - Front treble speaker

- ☐ Inside the left and right mirror triangles
- ☐ Speaker systems, refer to ➤ ["5.19.4 Treble, Front R20 / R22", page 234](#)

## 2.13.2 Connectors Overview

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
➤ [page 90](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
➤ [page 90](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
➤ [page 90](#)

### 4 - 12-Pin Connector 4, Satellite Radio -R146-

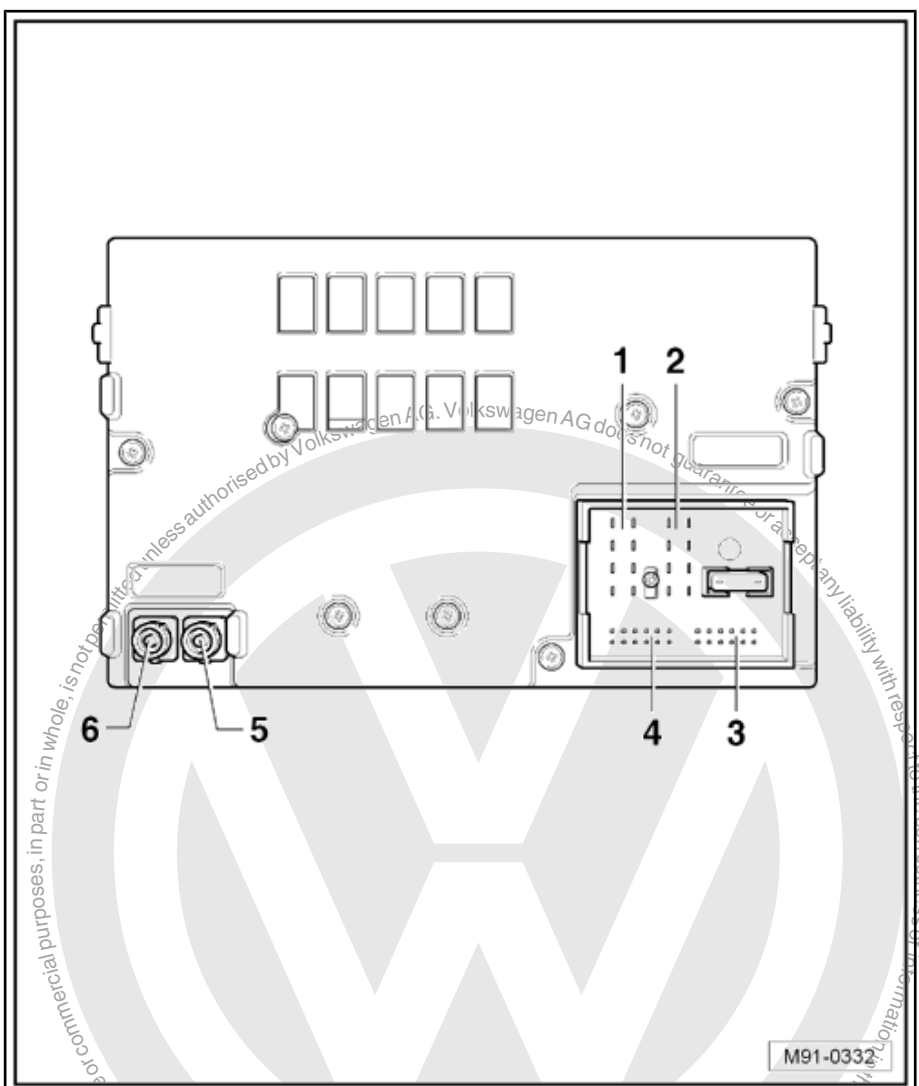
- ☐ Connector assignment  
➤ [page 90](#)

### 5 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to  
➤ ["2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to  
➤ ["2.3 Antenna Systems", page 68](#).

### 6 - Antenna Connection

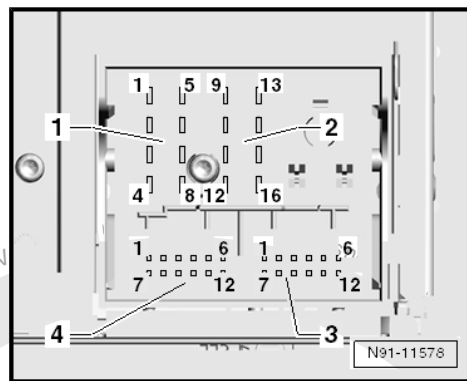
- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
➤ ["2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to  
➤ ["2.3 Antenna Systems", page 68](#)





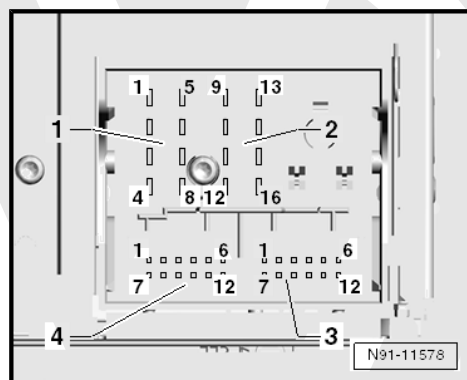
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



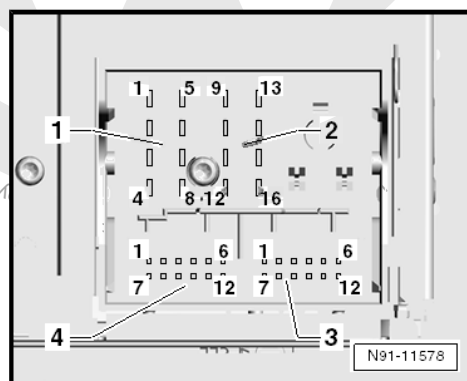
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 13 - Radio Switch on Signal
- 14 - Anti-Theft Warning System, Terminal 30
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



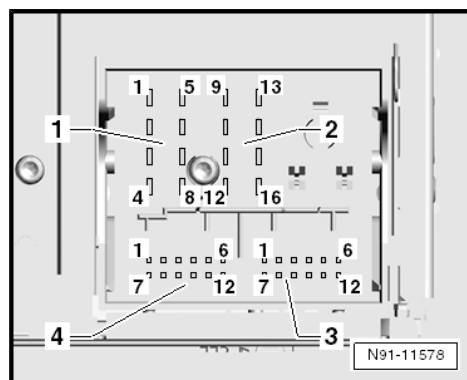
### 12-Pin Connector 3, Telephone

- 6 - Telephone, Low Frequency Signal Input (-)
- 12 - Telephone, Low Frequency Signal Input (+)



### 12-Pin Connector 4, Satellite Radio -R146-

- 1 - Audio Left from the Satellite Radio -R146-
- 2 - Not Assigned
- 3 - Audio Ground from the Satellite Radio -R146-
- 4 - Not Assigned
- 5 - Terminal 30 to the Satellite Radio -R146-
- 6 - Not Assigned
- 7 - Audio Right from the Satellite Radio -R146-
- 8 through 12 - not used

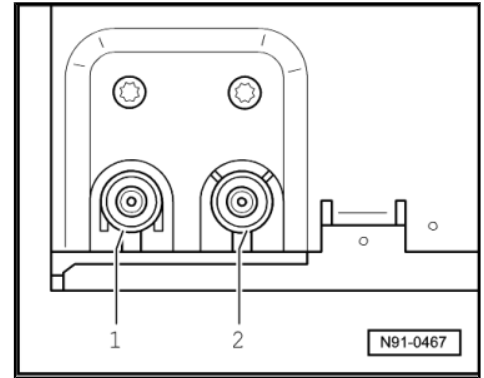






### 2.13.3 Antenna Connections

- 1 - Connector color: white, antenna systems on sedan models, refer to ➤ ["2.2 Antenna Systems", page 65](#)
- Connector color: white, antenna systems on wagon models, refer to ➤ ["2.3 Antenna Systems", page 68](#)
- 2 - Connector color: beige, antenna systems on sedan models, refer to ➤ ["2.2 Antenna Systems", page 65](#)
- Connector color: beige, antenna systems on wagon models, refer to ➤ ["2.3 Antenna Systems", page 68](#)



#### Note

*The radio has a diversity feature for the radio reception. Both antenna connections are signal inputs. The radio continuously analyzes which of the two connected window antennae receives the better reception signal. It then switches to the antenna with the better reception signal. The switching-over process is silent.*

### 2.14 RCD 210

Sedan ➤ ["2.14.1 Radio Component Location", page 91](#)

Wagon ➤ ["2.14.2 Radio Component Location", page 93](#)

➤ ["2.14.3 Connector Assignment", page 94](#)

#### 2.14.1 Radio Component Location





## 1 - Radio -R-

- ☐ Connector assignment  
⇒ [“2.14.3 Connector Assignment”, page 94](#)
- ☐ Removing and installing. Refer to  
⇒ [“5.15.2 RCD 210”, page 198](#).
- ☐ Radio functions, adapting. Refer to  
⇒ [“4.9 RCD 210, Adapting”, page 167](#).
- ☐ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 14](#).

## 2 - External Audio Source Connection -R199-

- ☐ in center console
- ☐ Refer to  
⇒ [“1.7 External Audio Source Connection R199”, page 7](#).

## 3 - Antenna -R11-

- ☐ Antenna systems, Sedan. Refer to  
⇒ [“2.2 Antenna Systems”, page 65](#).
- ☐ Antenna systems, wagon. Refer to  
⇒ [“2.3 Antenna Systems”, page 68](#).

## 4 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to  
⇒ [“1.17 Speakers”, page 56](#).

## 5 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).

## 6 - Front Bass Speaker

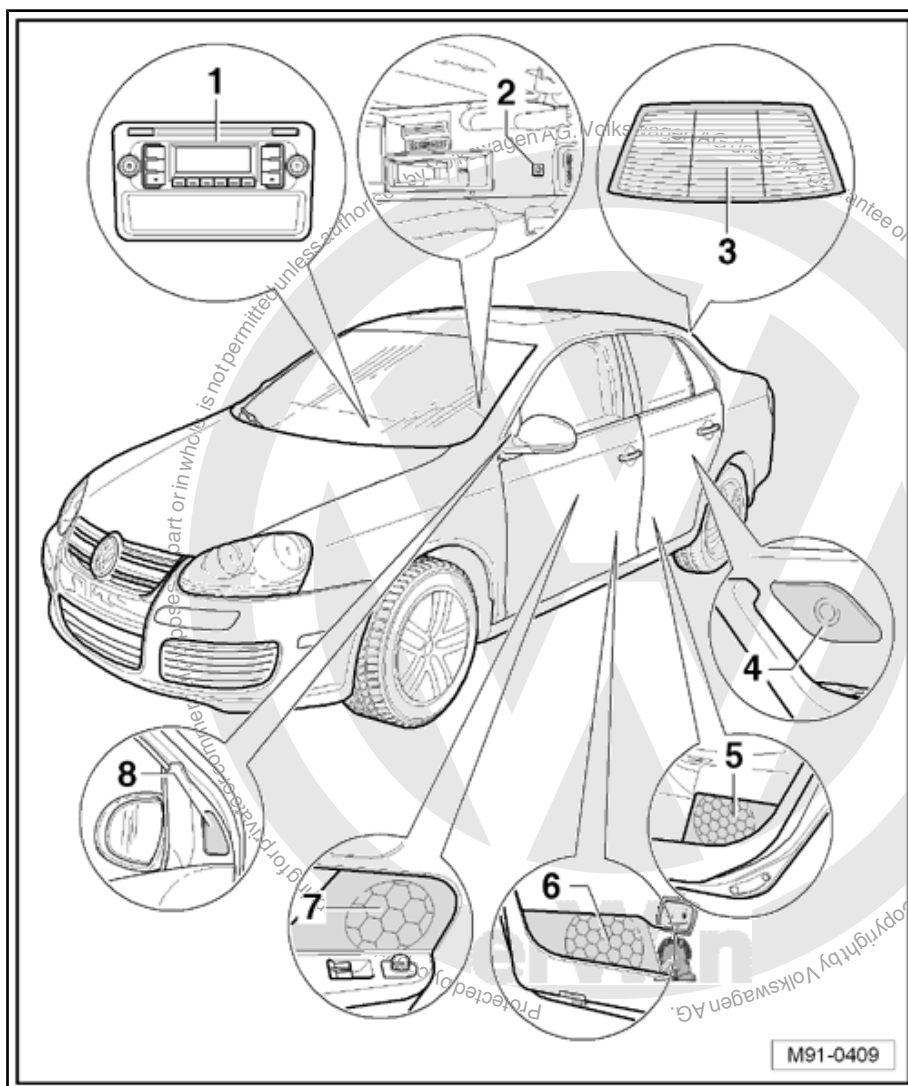
- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).

## 7 - Front Midrange Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).

## 8 - Front Treble Speaker

- ☐ Inside the left and right mirror triangle/A-pillar
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).





## 2.14.2 Radio Component Location

### 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ [“1.11 Multifunction Steering Wheel”, page 10](#) .

### 2 - Radio -R-

- ❑ Connector assignment  
⇒ [“2.14.3 Connector Assignment”, page 94](#)
- ❑ Removing and installing. Refer to  
⇒ [“5.15.2 RCD 210”, page 198](#) .
- ❑ Radio functions, adapting. Refer to  
⇒ [“4.9 RCD 210, Adapting”, page 167](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ⇒ [page 14](#) .

### 3 - Multimedia System Control Module -J650-

- ❑ in the glove compartment
- ❑ Refer to  
⇒ [“1.12 Multimedia System Control Module J650”, page 10](#) .

### 4 - Satellite Antenna -R170-

- ❑ Roof Antenna
- ❑ Antenna systems, wagon. Refer to  
⇒ [“2.3 Antenna Systems”, page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

- ❑ Antenna systems, wagon. Refer to ⇒ [“2.3 Antenna Systems”, page 68](#) .

### 6 - Rear Speaker

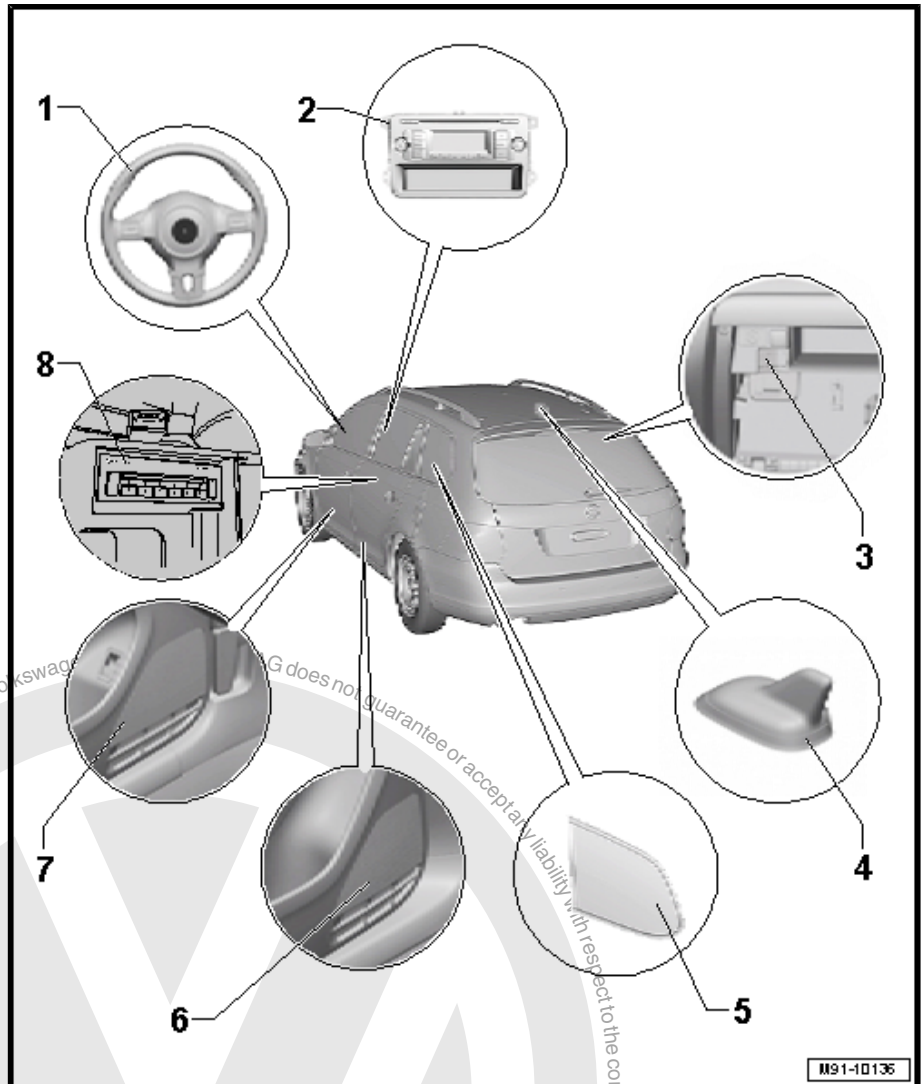
- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

### 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

### 8 - CD Changer -R41-

- ❑ in center console
- ❑ Refer to ⇒ [“1.4 CD Changer R41”, page 4](#)





## 2.14.3 Connector Assignment

### 1 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

### 2 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 94](#)

### 3 - 8-Pin Connector 2, CAN Bus, Voltage Supply

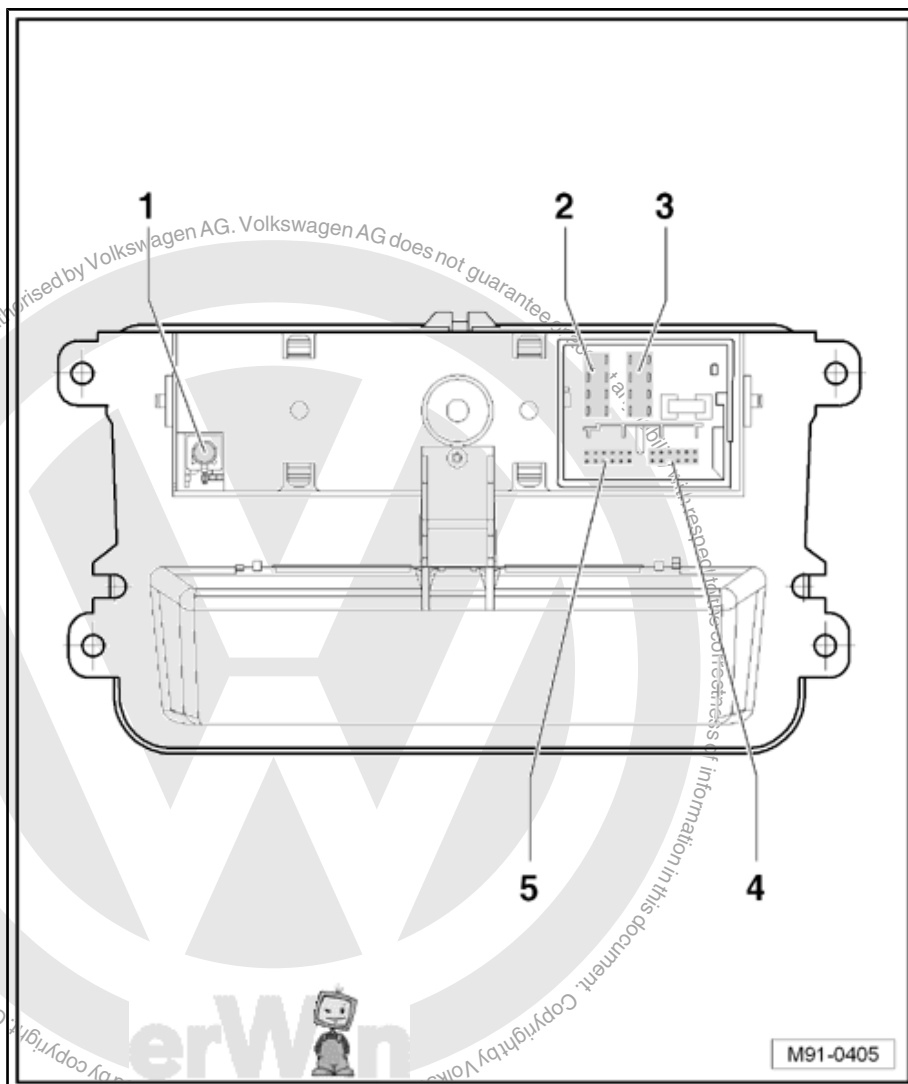
- ☐ Connector assignment  
⇒ [page 95](#)

### 4 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 95](#)

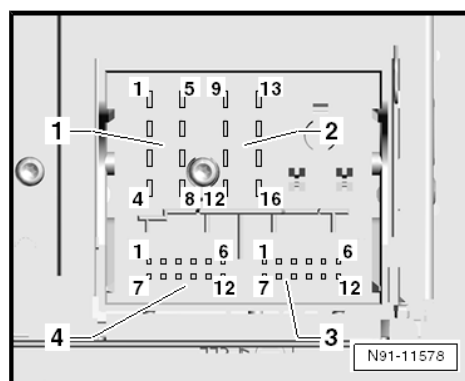
### 5 - 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199-

- ☐ Connector assignment  
⇒ [page 95](#)



### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)





## 8-Pin Connector 2, CAN Bus, Voltage Supply

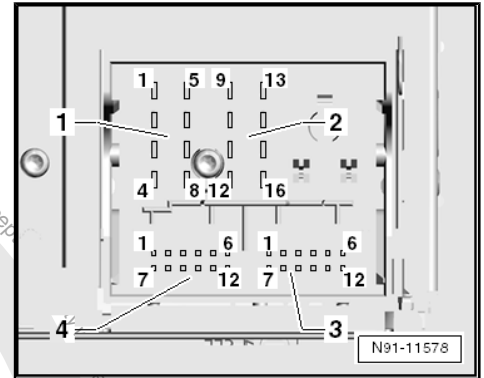
9 - CAN Bus High

10 - Can Bus Low

12 - Terminal 31

15 - Terminal 30

16 - Continuous Positive, connected with PIN 15, anti-theft warning system

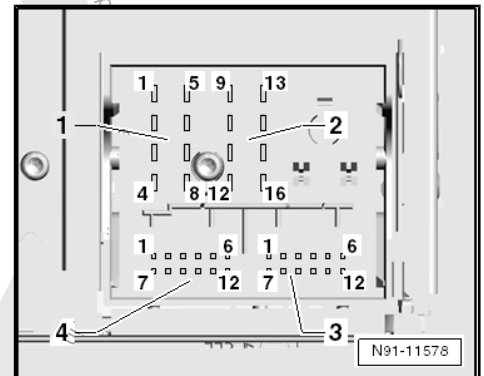


## 12-Pin Connector 3, Telephone

6 - Telephone, Low Frequency Signal Input (-)

10 Telephone, Mute

12 Telephone, Low Frequency Signal Input (+)



## 12-Pin Connector 4, CD Changer -R41-, External Audio Source Connection -R199-

1 - Left Audio Input External Audio Source Connection -R199-

2 - Audio Input Ground External Audio Source Connection -R199-

3 - Audio Ground from the CD Changer -R41-

4 - Terminal 30 to the CD Changer -R41-

5 - Not Assigned

6 - CD data out to the CD Changer -R41-

7 - Right Audio Input External Audio Source Connection -R199-

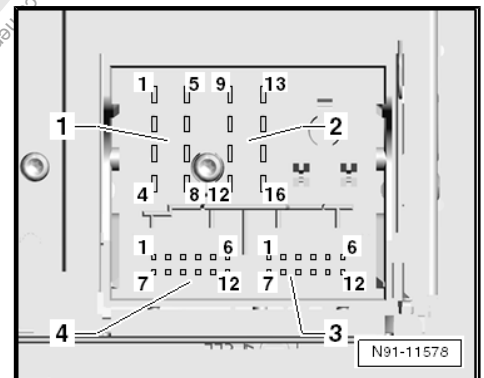
8 - Left Audio from the CD Changer -R41-

9 - Right Audio from the CD Changer -R41-

10 - Control Signal to the CD Changer -R41-

11 - CD data in from CD Changer -R41-

12 - CD CLK from CD Changer -R41-



## 2.15 RCD 300

⇒ ["2.15.1 Radio Component Location", page 95](#)

⇒ ["2.15.2 Connector Assignment", page 97](#)

### 2.15.1 Radio Component Location





## 1 - Radio -R-

- ☐ Connector assignment  
⇒ ["2.15.2 Connector Assignment", page 97](#)
- ☐ Removing and installing. Refer to  
⇒ ["5.15.3 RCD 300", page 200](#) .
- ☐ Radio functions, adapting. Refer to  
⇒ ["4.10 RCD 300, Adapting", page 168](#) .
- ☐ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 16](#) .

## 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to  
⇒ ["1.4 CD Changer R41", page 4](#) .

## 3 - Antenna -R11- / Radio Antenna 2 -R93-

- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

## 4 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to  
⇒ ["1.17 Speakers", page 56](#) .

## 5 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .

## 6 - Front Bass Speaker

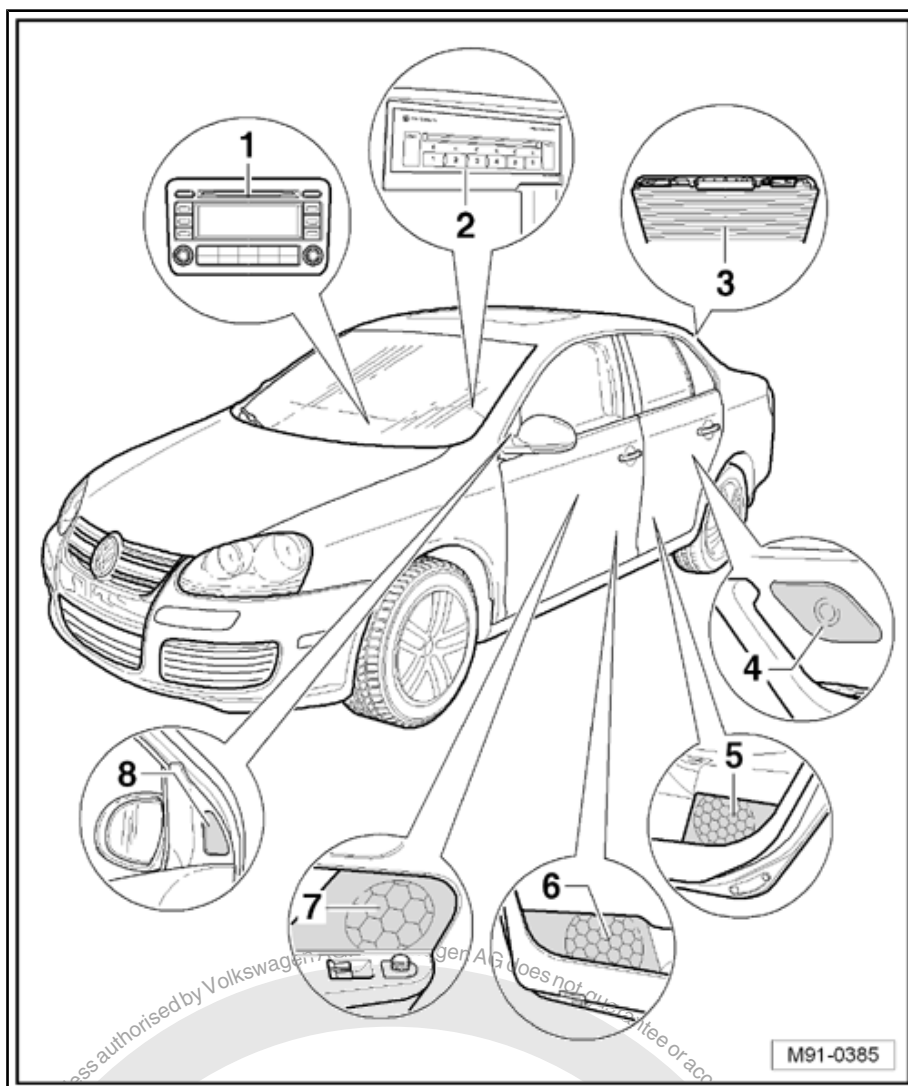
- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .

## 7 - Front Midrange Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .

## 8 - Front Treble Speaker

- ☐ Inside the left and right mirror triangles
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .





## 2.15.2 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 97](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 98](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 98](#)

### 4 - 12-Pin Connector 4, CD Changer -R41-

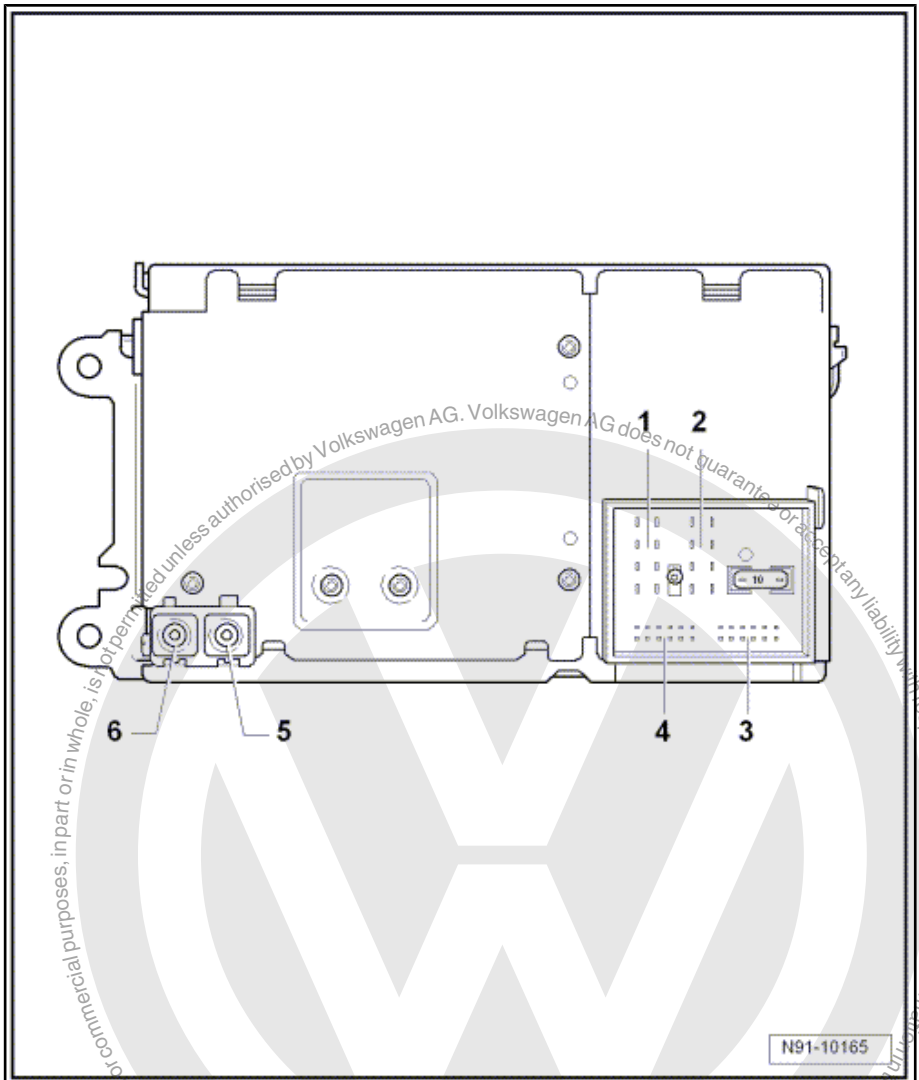
- ☐ Connector assignment  
⇒ [page 98](#)

### 5 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

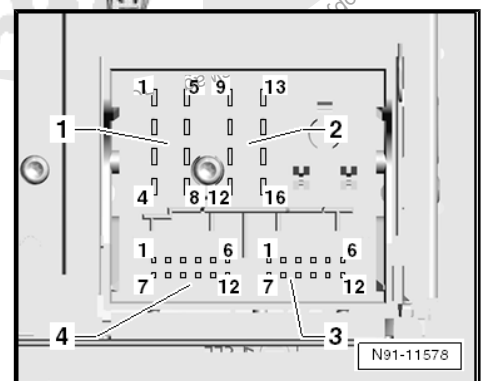
### 6 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .



### 8-Pin Connector 1, Speaker Outputs

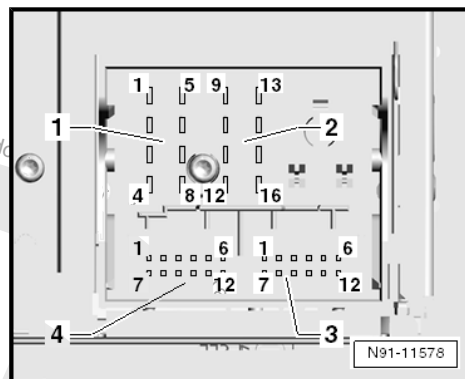
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (-)
- 8 - Left Rear Speaker (-)





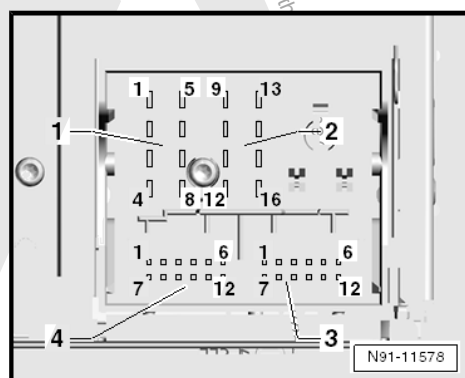
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



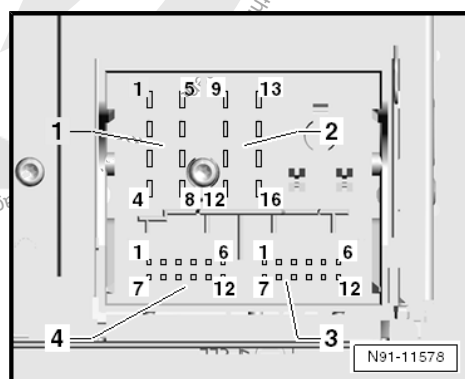
### 12-Pin Connector 3, Telephone

- 6 - Telephone, Low Frequency Signal Input (-)
- 12 - Telephone, Low Frequency Signal Input (+)



### 12-Pin Connector 4, CD Changer -R41-

- 1 - Not Assigned
- 2 - Audio Ground from the CD Changer -R41-
- 3 - Not Assigned
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Not Assigned
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.16 RCD 030+

⇒ ["2.16.1 Radio Component Location Wagon", page 98](#)

⇒ ["2.16.2 Connector Assignment", page 100](#)

### 2.16.1 Radio Component Location Wagon





## 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ ["1.11 Multifunction Steering Wheel", page 10](#) .

## 2 - Radio -R-

- ❑ Connector assignment  
⇒ ["2.16.2 Connector Assignment", page 100](#)
- ❑ Removing and installing. Refer to  
⇒ ["5.15.4 RCD 030+", page 202](#) .
- ❑ Radio functions, adapting. Refer to  
⇒ ["4.11 RCD 030+, Adapting", page 168](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ⇒ , [page 18](#) .

## 3 - USB Connection

- ❑ On the rear of RCD 030 +

## 4 - Antenna -R11-

- ❑ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

## 5 - External Audio Source Connection 2 -R231-, USB Port

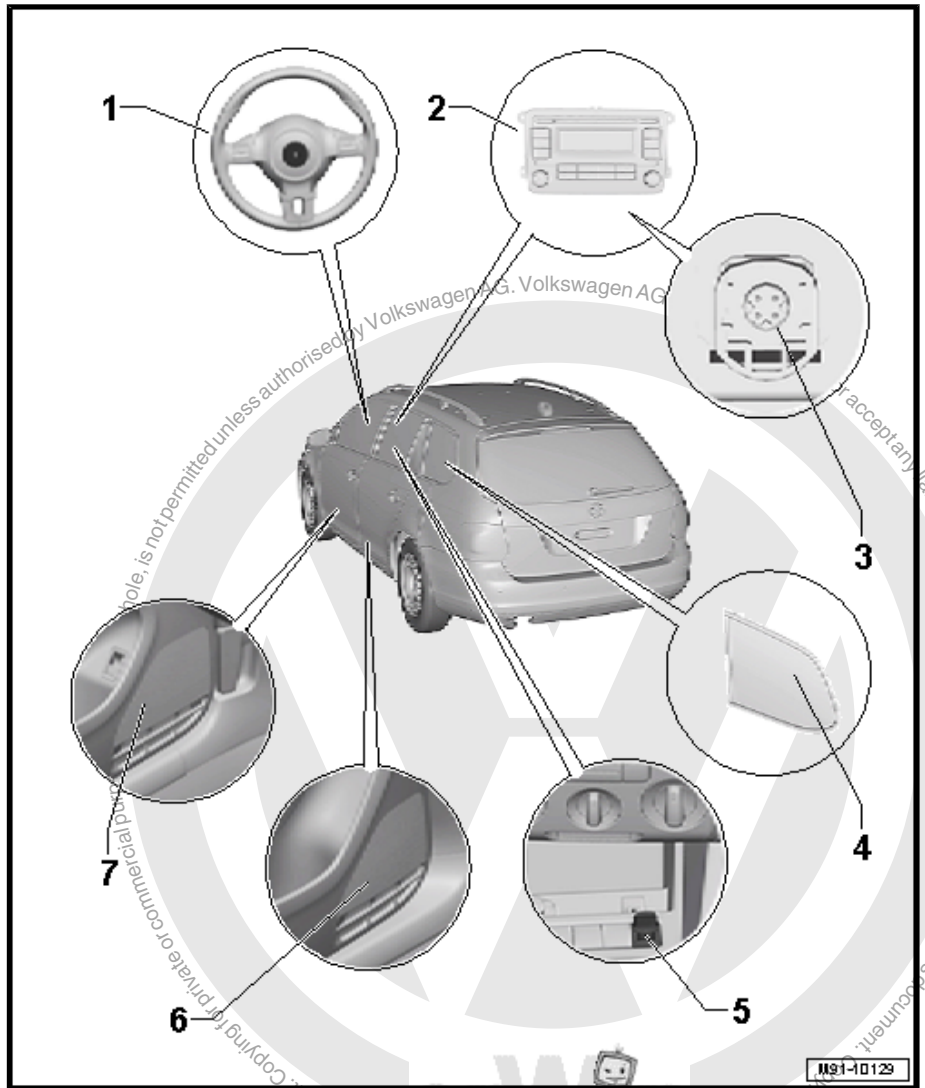
- ❑ in center console, front
- ❑ Refer to  
⇒ ["5.8 External Audio Source Connection 2 R231 USB Port", page 186](#) .

## 6 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .

## 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .





## 2.16.2 Connector Assignment

### 1 - Multi-Pin Connector

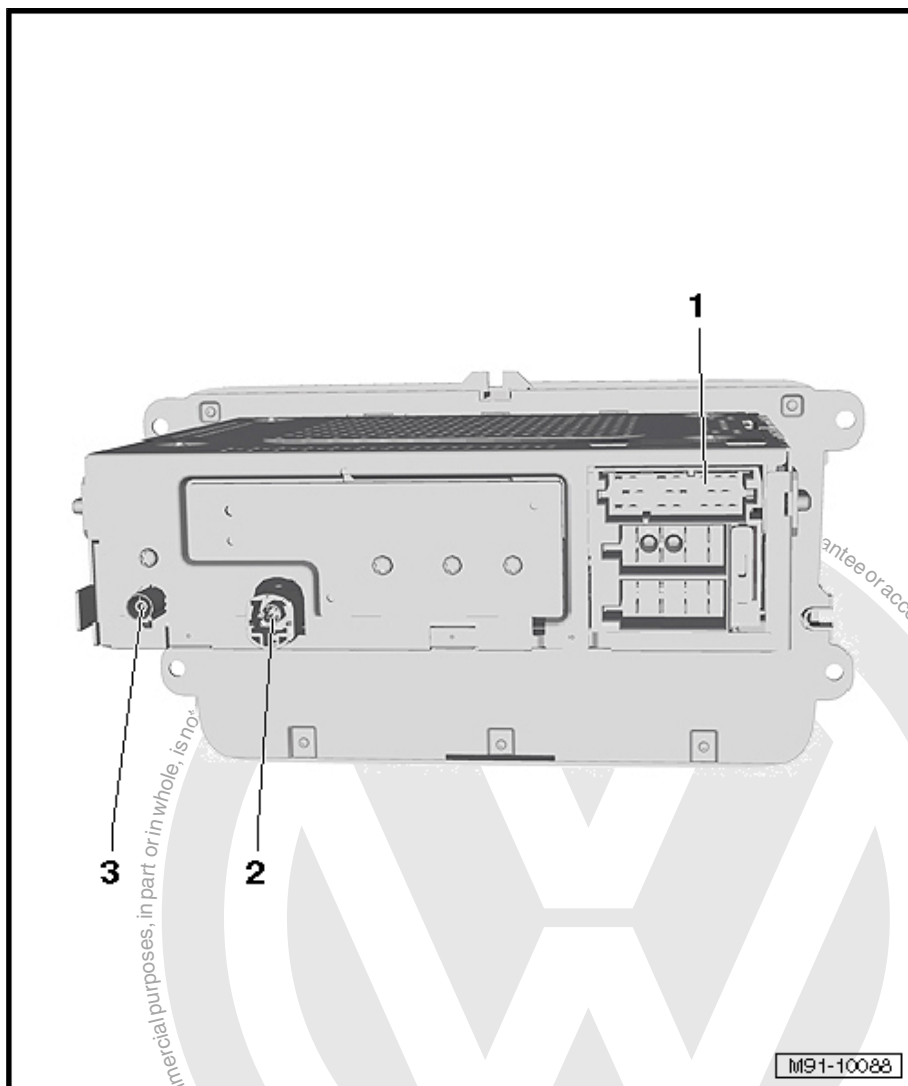
- ❑ Connector assignment  
⇒ [page 101](#)

### 2 - USB Connection

- ❑ Connector assignment  
⇒ [page 102](#)

### 3 - Antenna Connection

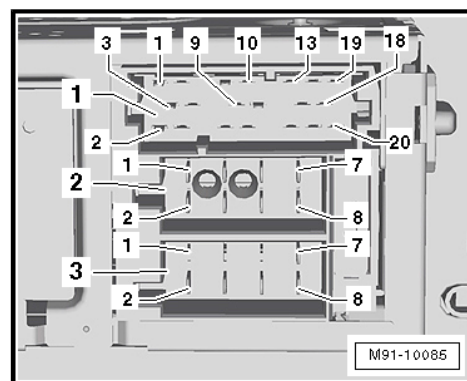
- ❑ AM/FM
- ❑ Antenna systems, wagon.  
on. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .





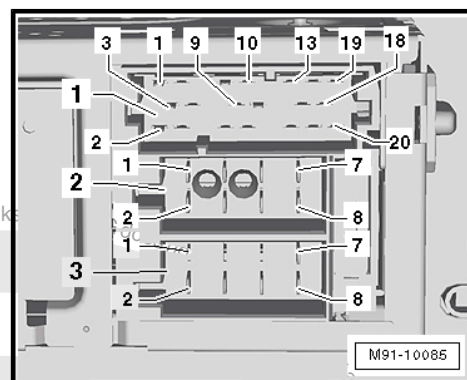
## 20-pin connector 1, telephone and audio inputs

- 1 - Right Audio Input
- 2 - Left Video Input
- 3 - Audio Input Ground
- 4 - Not Assigned
- 5 - Not Assigned
- 6 - Not Assigned
- 7 - Telephone, Low Frequency Signal Input (+)
- 8 - Not Assigned
- 9 - Not Assigned
- 10 - Not Assigned
- 11 - Not Assigned
- 12 - Telephone, Low Frequency Signal Input (-)
- 13 through 20 - not used



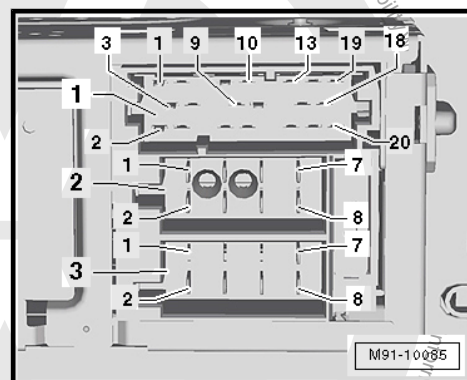
## 8-Pin Connector 2, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Rear Speaker (-)
- 3 - Right Front Speaker (-)
- 4 - Right Front Speaker (+)
- 5 - Left Front Speaker (+)
- 6 - Left Front Speaker (-)
- 7 - Left Rear Speaker (+)
- 8 - Left Rear Speaker (-)



## 8-pin connector 3, voltage supply

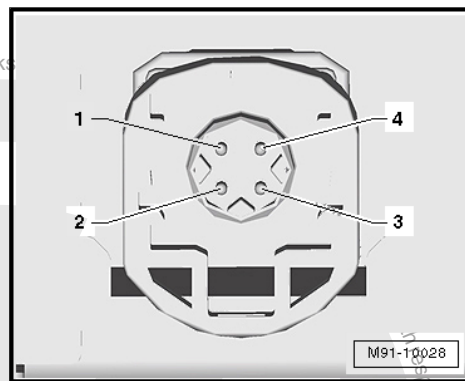
- 1 - Not Assigned
- 2 - Telephone, Mute
- 3 - Not Assigned
- 4 - Radio -R- on
- 5 - Not Assigned
- 6 - Terminal 58
- 7 - Terminal 30
- 8 - Terminal 31





## 4-Pin USB Connection

- 1 - Ground
- 2 - D (-)
- 3 - VCC (+5 V)
- 4 - D (+)



## 2.17 RCD 300+

⇒ ["2.17.1 Component Location Overview", page 102](#)

⇒ ["2.17.2 Connector Assignment", page 103](#)

### 2.17.1 Component Location Overview

#### 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ ["1.11 Multifunction Steering Wheel", page 10](#) .

#### 2 - Radio -R-

- ❑ Connector assignment  
⇒ ["2.17.2 Connector Assignment", page 103](#)
- ❑ Removing and installing. Refer to  
⇒ ["5.15.5 RCD 300+", page 204](#) .
- ❑ Radio functions, adapting. Refer to  
⇒ ["4.12 RCD 300+, Adapting", page 168](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to [⇒ , page 20](#) .

#### 3 - USB Connection

- ❑ On the rear of RCD 300 +

#### 4 - Antenna -R11-

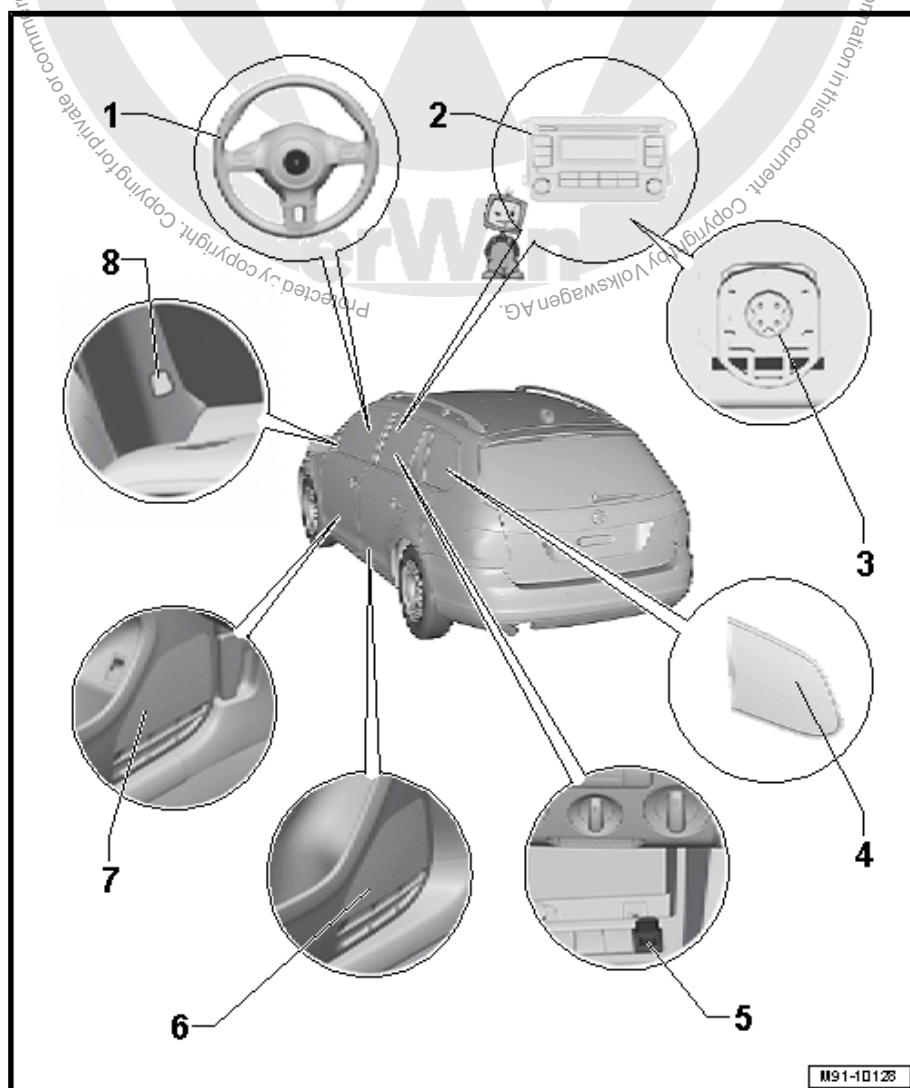
- ❑ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

#### 5 - External Audio Source Connection 2 -R231-, USB Port

- ❑ in center console, front
- ❑ Refer to  
⇒ ["1.8 External Audio Source Connection 2 R231 \(USB Port\)", page 8](#) .

#### 6 - Rear Speaker

- ❑ Inside the left and right rear doors





- ☐ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

## 7 - Front Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

## 8 - Front Treble Speaker

- ☐ Inside the left and right mirror triangle/A-pillar
- ☐ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

## 2.17.2 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
➤ [page 104](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
➤ [page 104](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
➤ [page 104](#)

### 4 - 12-Pin Connector 4, Audio Inputs

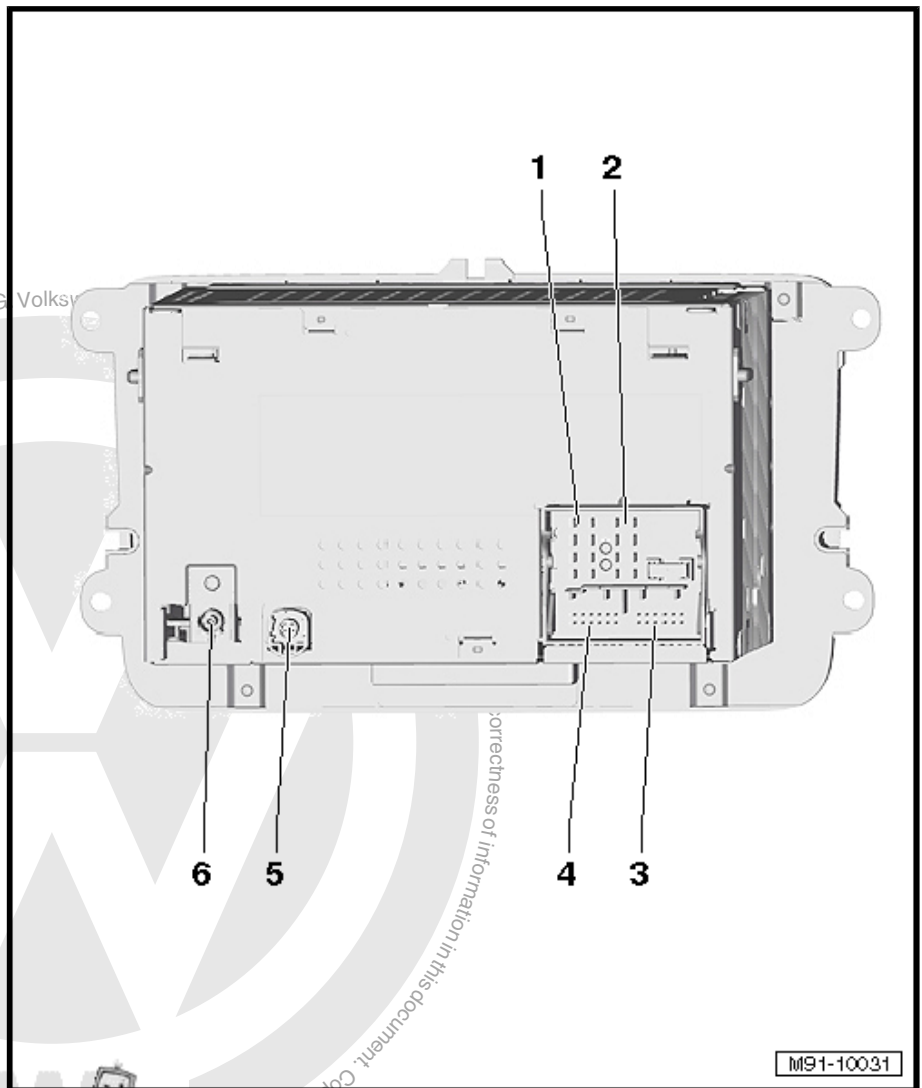
- ☐ Connector assignment  
➤ [page 105](#)

### 5 - USB Connection

- ☐ Connector assignment  
➤ [page 105](#)

### 6 - Antenna Connection

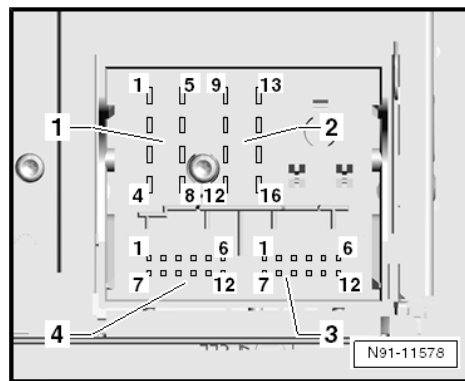
- ☐ AM/FM
- ☐ Antenna systems, wagon. Refer to  
➤ [“2.3 Antenna Systems”, page 68](#) .





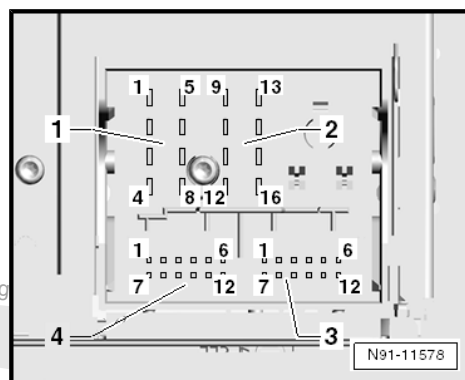
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



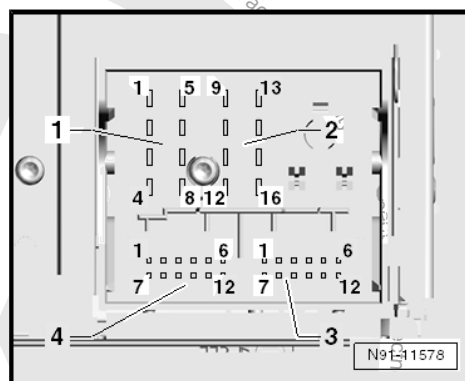
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warn-  
ing system



### 12-Pin Connector 3, Telephone

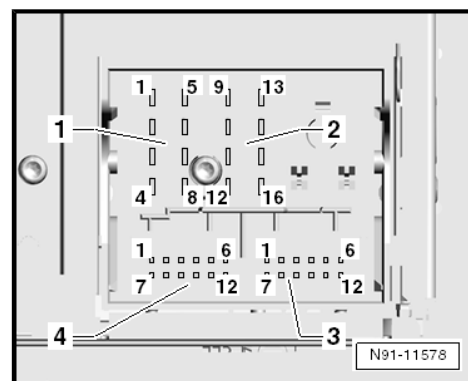
- 1 - Not Assigned
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Not Assigned
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Not Assigned
- 8 - Not Assigned
- 9 - Not Assigned
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)





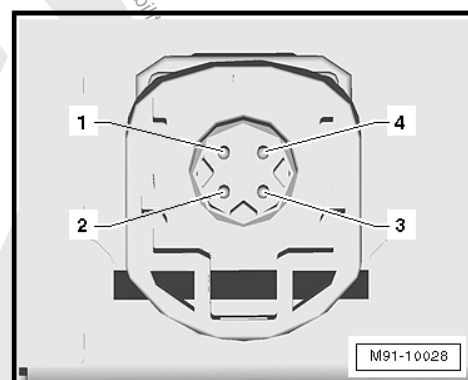
## 12-Pin Connector 4, Audio Inputs

- 1 - Left Video Input
- 2 - Audio Input Ground
- 3 - Audio Ground
- 4 - Terminal 30, CD
- 5 - Not Assigned
- 6 - Not Assigned
- 7 - Right Audio Input
- 8 - Audio Left, CD
- 9 - Audi Right, CD
- 10 - Not Assigned
- 11 - Not Assigned
- 12 - Not Assigned



## 4-Pin USB Connection

- 1 - Ground
- 2 - D (-)
- 3 - VCC (+5 V)
- 4 - D (+)



## 2.18 RCD 310

Sedan ➤ ["2.18.1 Component Location Overview", page 105](#)

Wagon ➤ ["2.18.2 Component Location Overview", page 107](#)

➤ ["2.18.3 Connectors Overview", page 108](#)

### 2.18.1 Component Location Overview





## 1 - Radio -R-

- ☐ Connectors, refer to  
⇒ [“2.18.3 Connectors Overview”, page 108](#)
- ☐ Removing and installing, refer to  
⇒ [“5.15.6 RCD 310”, page 206](#)
- ☐ Radio functions, adapting, refer to  
⇒ [“4.13 RCD-310 Entry Components, Adapting”, page 168](#)
- ☐ Electronic anti-theft protection, deactivating, refer to ⇒ [page 22](#)

## 2 - CD changer -R41-

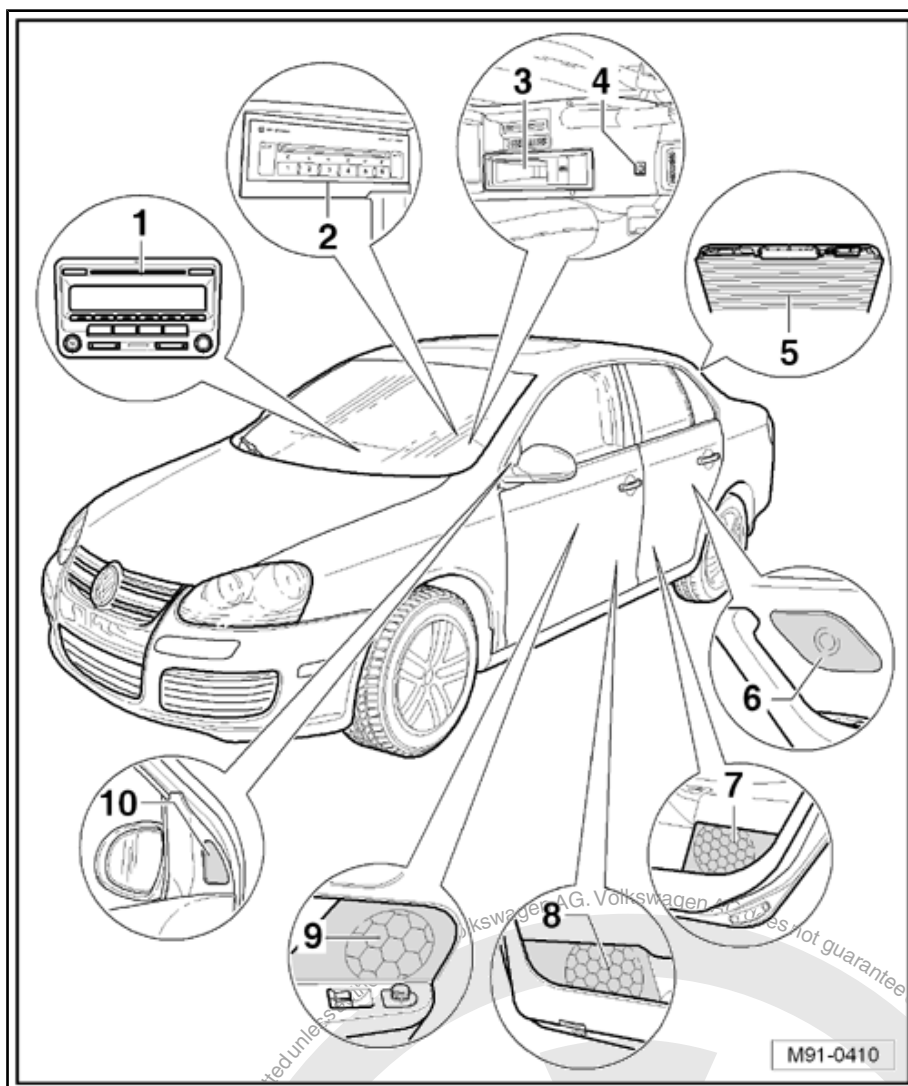
- ☐ In center console
- ☐ Refer to  
⇒ [“1.4 CD Changer R41”, page 4](#)

## 3 - Multimedia system control module -J650-

- ☐ In center console
- ☐ Refer to  
⇒ [“1.12 Multimedia System Control Module J650”, page 10](#)

## 4 - External audio source connection -R199-

- ☐ In center console
- ☐ External audio source connection, refer to  
⇒ [“1.7 External Audio Source Connection R199”, page 7](#)



## 5 - Antenna -R11- / radio antenna 2 -R93-

- ☐ Antenna systems, Sedan. Refer to ⇒ [“2.2 Antenna Systems”, page 65](#) .

## 6 - Rear treble speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to ⇒ [“5.19.5 Treble Speaker, Rear”, page 235](#)

## 7 - Rear bass speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to ⇒ [“5.19.2 Bass, Rear”, page 232](#)

## 8 - Front bass speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems, refer to ⇒ [“5.19.1 Bass, Front”, page 232](#)

## 9 - Front midrange speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems, refer to ⇒ [“5.19.3 Mid-Range, Front”, page 233](#)

## 10 - Front treble speaker

- ☐ Inside the left and right mirror triangle/A-pillar
- ☐ Speaker systems, refer to ⇒ [“5.19.4 Treble, Front R20 / R22”, page 234](#)





## 2.18.2 Component Location Overview

### 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ [“1.11 Multifunction Steering Wheel”, page 10](#) .

### 2 - Radio -R-

- ❑ Connector assignment  
⇒ [“2.18.3 Connectors Overview”, page 108](#)
- ❑ Removing and installing. Refer to  
⇒ [“5.15.6 RCD 310”, page 206](#) .
- ❑ Radio functions, adapting. Refer to  
⇒ [“4.13 RCD-310 Entry Components, Adapting”, page 168](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ⇒ [page 22](#) .

### 3 - Multimedia System Control Module -J650-

- ❑ in center console
- ❑ Refer to  
⇒ [“1.12 Multimedia System Control Module J650”, page 10](#) .

### 4 - Roof Antenna

- ❑ Antenna systems, wagon. Refer to  
⇒ [“2.3 Antenna Systems”, page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

- ❑ Antenna systems, wagon. Refer to ⇒ [“2.3 Antenna Systems”, page 68](#) .

### 6 - Rear Speaker

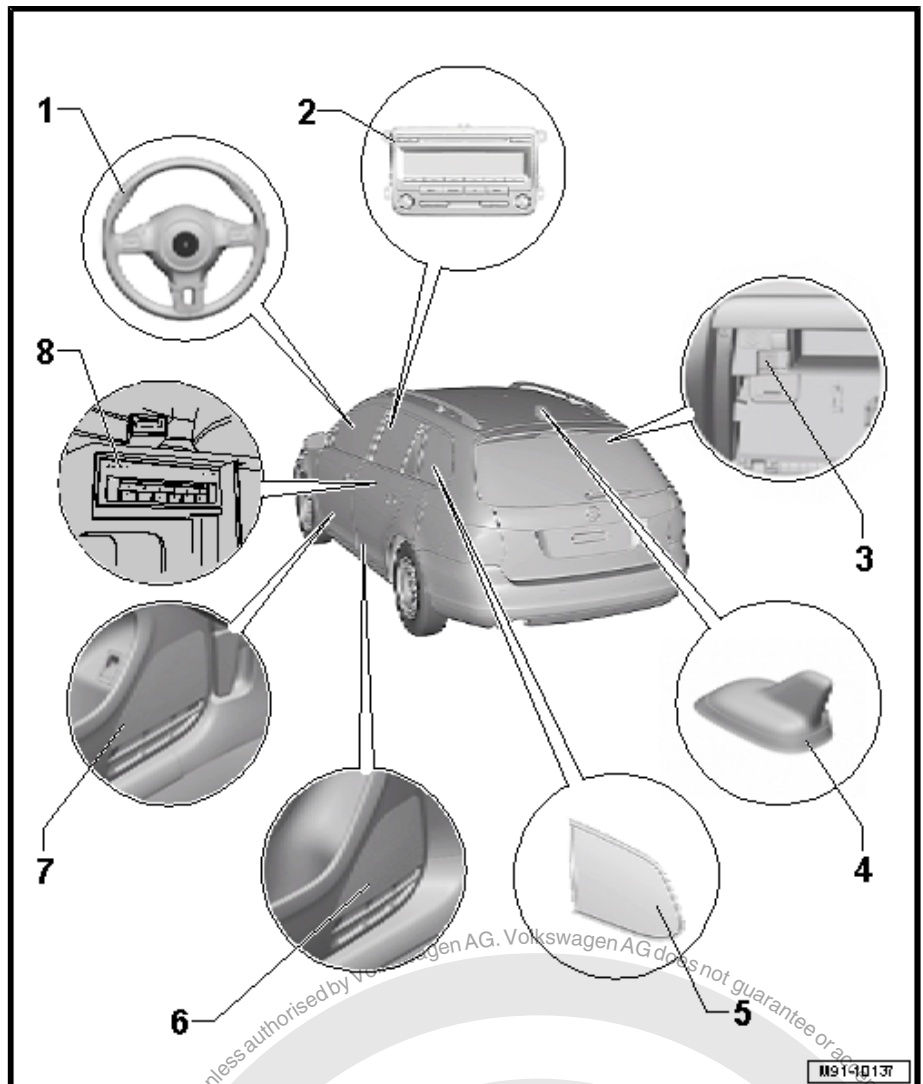
- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

### 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

### 8 - CD Changer -R41-

- ❑ in center console
- ❑ Refer to ⇒ [“1.4 CD Changer R41”, page 4](#) .





## 2.18.3 Connectors Overview

### 1 - Antenna Connection

- ☐ DAB
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

### 2 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 109](#)

### 3 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 109](#)

### 4 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 109](#)

### 5 - 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection - R199- , Multimedia System Control Module -J650-

- ☐ Connector assignment  
⇒ [page 110](#)

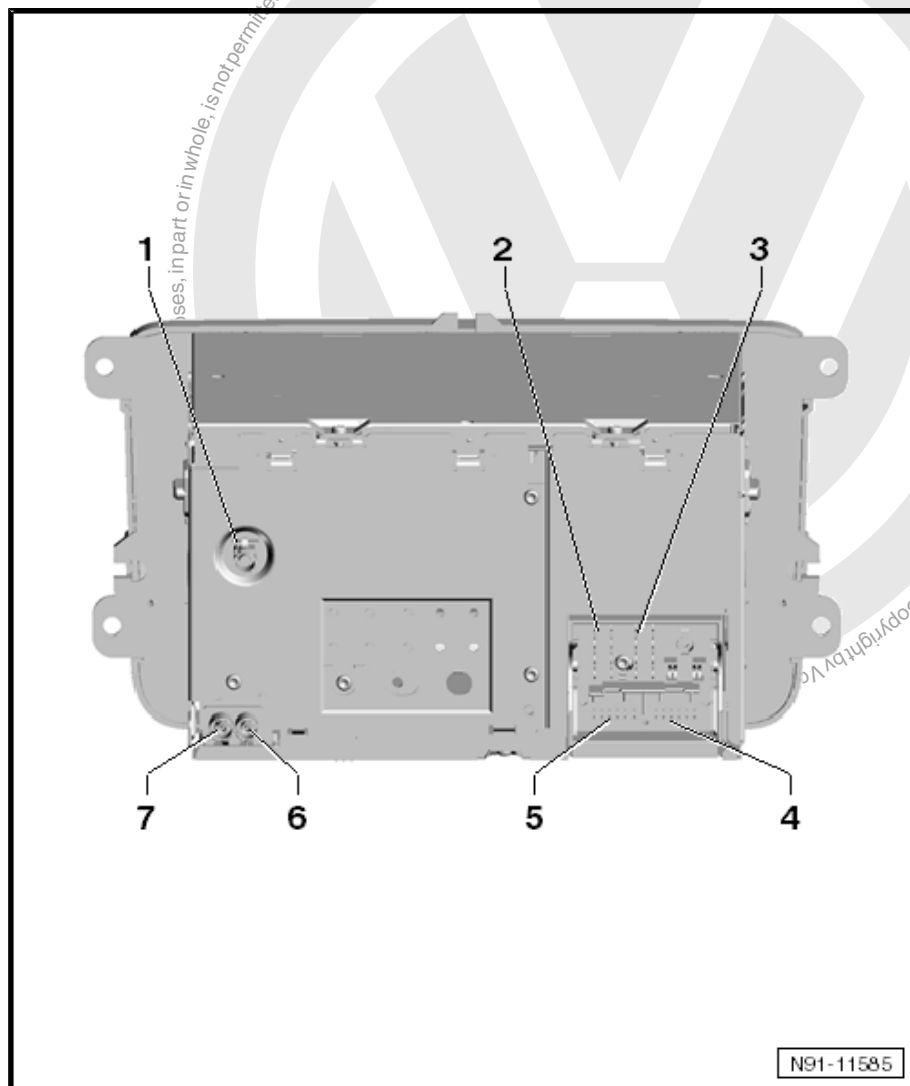
### 6 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .

- ☐ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .

### 7 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .





### 8-Pin Connector 1, Speaker Outputs

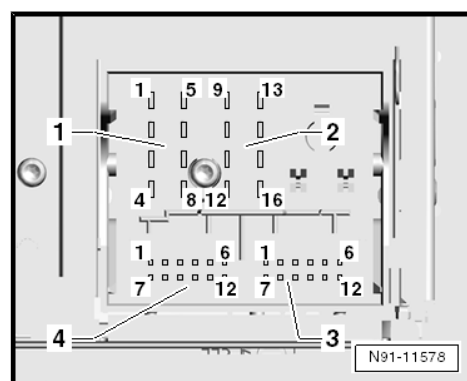
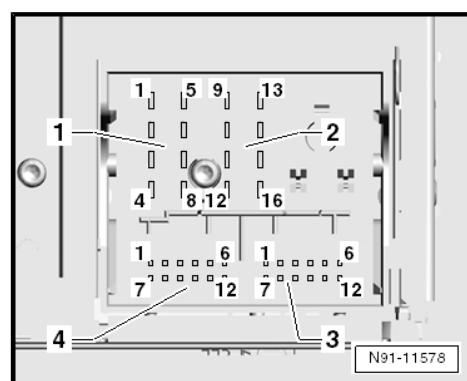
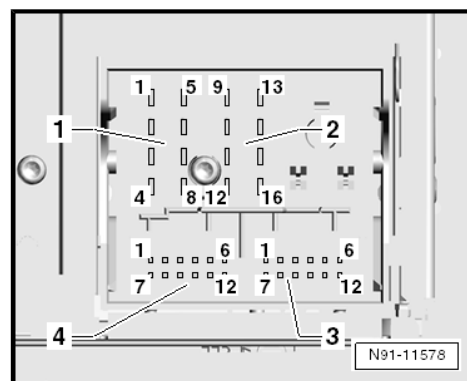
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)

### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system

### 12-Pin Connector 3, Telephone

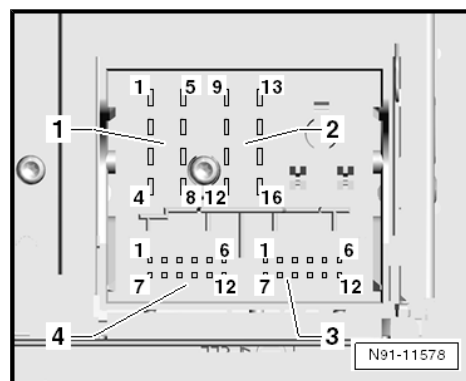
- 1 - Microphone Input (-)
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Not Assigned
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)





### 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199- , Multimedia System Control Module -J650-

- 1 - Left Audio Input External Audio Source Connection -R199- / Multimedia System Control Module -J650-
- 2 - Audio Input Ground External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.19 Radio Premium 8

Sedan ➔ ["2.19.1 Component Location Overview", page 110](#)

Wagon ➔ ["2.19.2 Component Location Overview", page 112](#)

➔ ["2.19.3 Connectors Overview", page 113](#)

### 2.19.1 Component Location Overview



## 1 - Radio

- ☐ Connectors, refer to  
⇒ ["2.19.3 Connectors Overview", page 113](#)
- ☐ Transport protection, activating/deactivating, refer to ⇒ [page 25](#)
- ☐ Removing and installing, refer to  
⇒ ["5.15.9 Premium 8", page 212](#)
- ☐ Radio functions, adapting, refer to  
⇒ ["4.14 Premium 8 Components, Adapting", page 169](#)
- ☐ Electronic anti-theft protection, deactivating. Refer to ⇒ [page 31](#).

## 2 - Amplifier -R12-

- ☐ Under the left front seat
- ☐ Refer to  
⇒ ["1.1 Amplifier R12", page 2](#)

## 3 - Multimedia system control module -J650-

- ☐ In center console
- ☐ Multimedia system control module, refer to  
⇒ ["1.12 Multimedia System Control Module J650", page 10](#)
- ☐ CD changer -R41-, refer to  
⇒ ["1.4 CD Changer R41", page 4](#)
- ☐ External audio source connection -R199-, refer to  
⇒ ["1.7 External Audio Source Connection R199", page 7](#)

## 4 - Satellite Antenna -R170-

- ☐ Roof Antenna
- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#).

## 5 - Antenna -R11- / radio antenna 2 -R93-

- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#).

## 6 - Rear treble speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to ⇒ ["5.19.5 Treble Speaker, Rear", page 235](#)

## 7 - Rear bass speaker

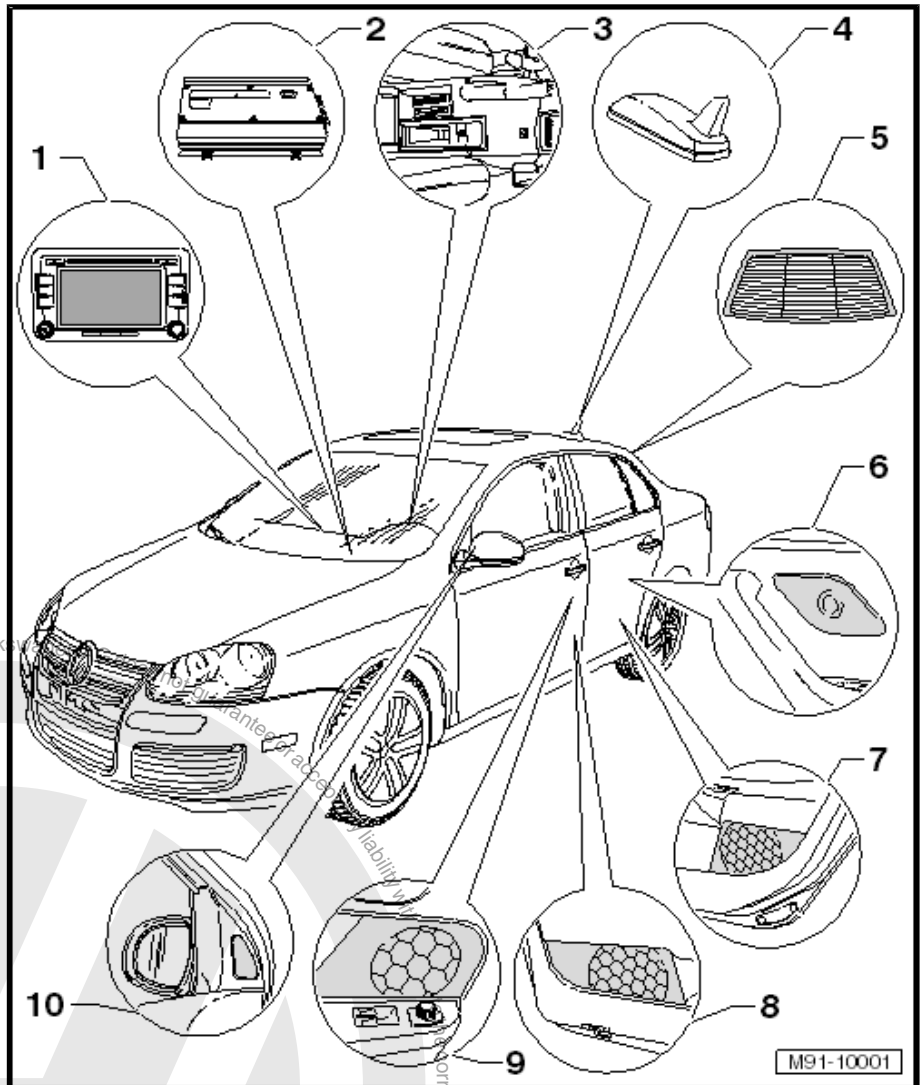
- ☐ Inside the left and right rear doors
- ☐ Speaker systems, refer to ⇒ ["5.19.2 Bass, Rear", page 232](#)

## 8 - Front bass speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems, refer to ⇒ ["5.19.1 Bass, Front", page 232](#)

## 9 - Front midrange speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems, refer to ⇒ ["5.19.3 Mid-Range, Front", page 233](#)





## 10 - Front treble speaker

- ❑ Inside the left and right mirror triangle/A-pillar
- ❑ Speaker systems, refer to ➤ [“5.19.4 Treble, Front R20 / R22 ”, page 234](#)

## 2.19.2 Component Location Overview

### 1 - Multifunction Steering Wheel

- ❑ Refer to  
➤ [“1.11 Multifunction Steering Wheel”, page 10](#) .

### 2 - Radio -R-

- ❑ Connector assignment  
➤ [“2.19.3 Connectors Overview”, page 113](#)
- ❑ Removing and installing. Refer to  
➤ [“5.15.9 Premium 8”, page 212](#) .
- ❑ Transport protection, activating/deactivating. Refer to ➤ [page 30](#) .
- ❑ Radio functions, adapting. Refer to  
➤ [“4.14 Premium 8 Components, Adapting”, page 169](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ➤ [page 31](#) .

### 3 - Multimedia System Control Module -J650-

- ❑ In center console
- ❑ Refer to  
➤ [“1.12 Multimedia System Control Module J650 ”, page 10](#)

### 4 - Roof Antenna

- ❑ Antenna systems, wagon. Refer to  
➤ [“2.3 Antenna Systems”, page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

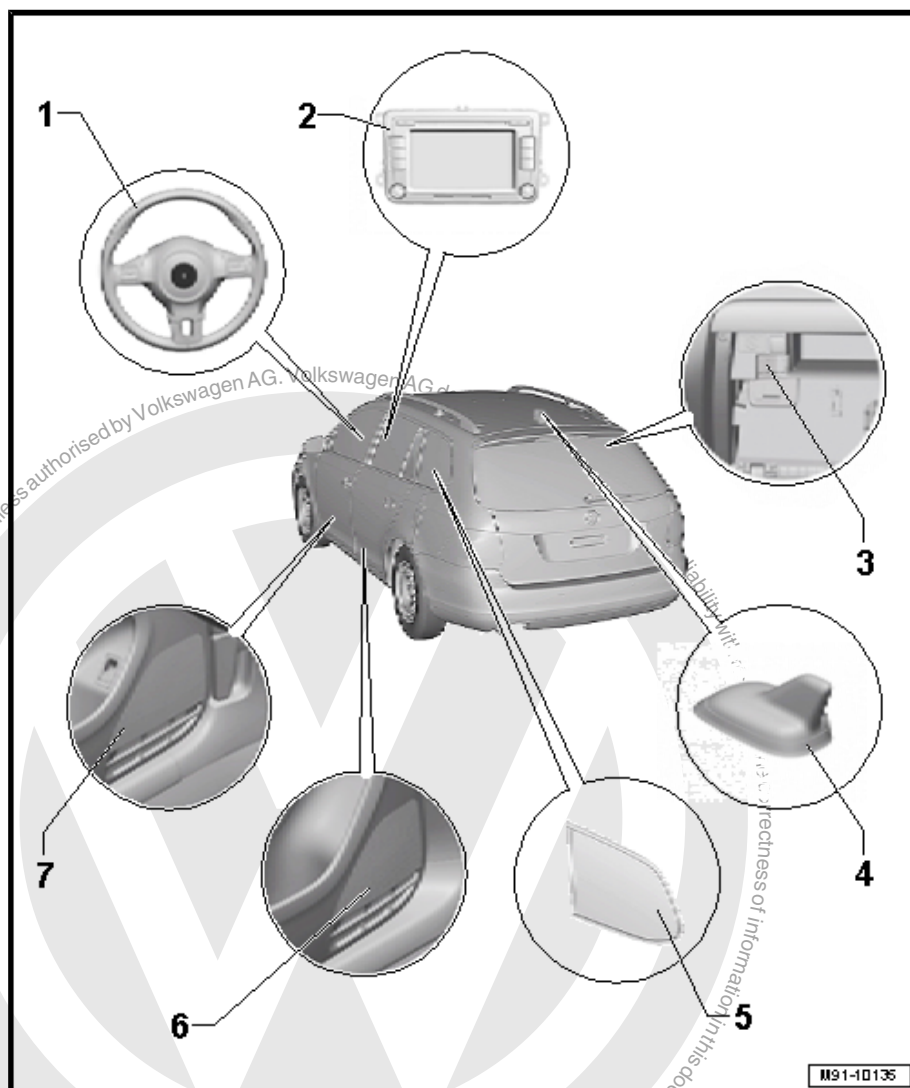
- ❑ Antenna systems, wagon. Refer to ➤ [“2.3 Antenna Systems”, page 68](#) .

### 6 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

### 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .







## 2.19.3 Connectors Overview

### 1 - Antenna Connection

- ☐ SAT
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#) .

### 2 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment [⇒ page 114](#)

### 3 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment [⇒ page 114](#)

### 4 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment [⇒ page 114](#)

### 5 - 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection - R199- , Multimedia System Control Module -J650-

- ☐ Connector assignment [⇒ page 115](#)

### 6 - 26-Pin Connector 5, Video and LF Input

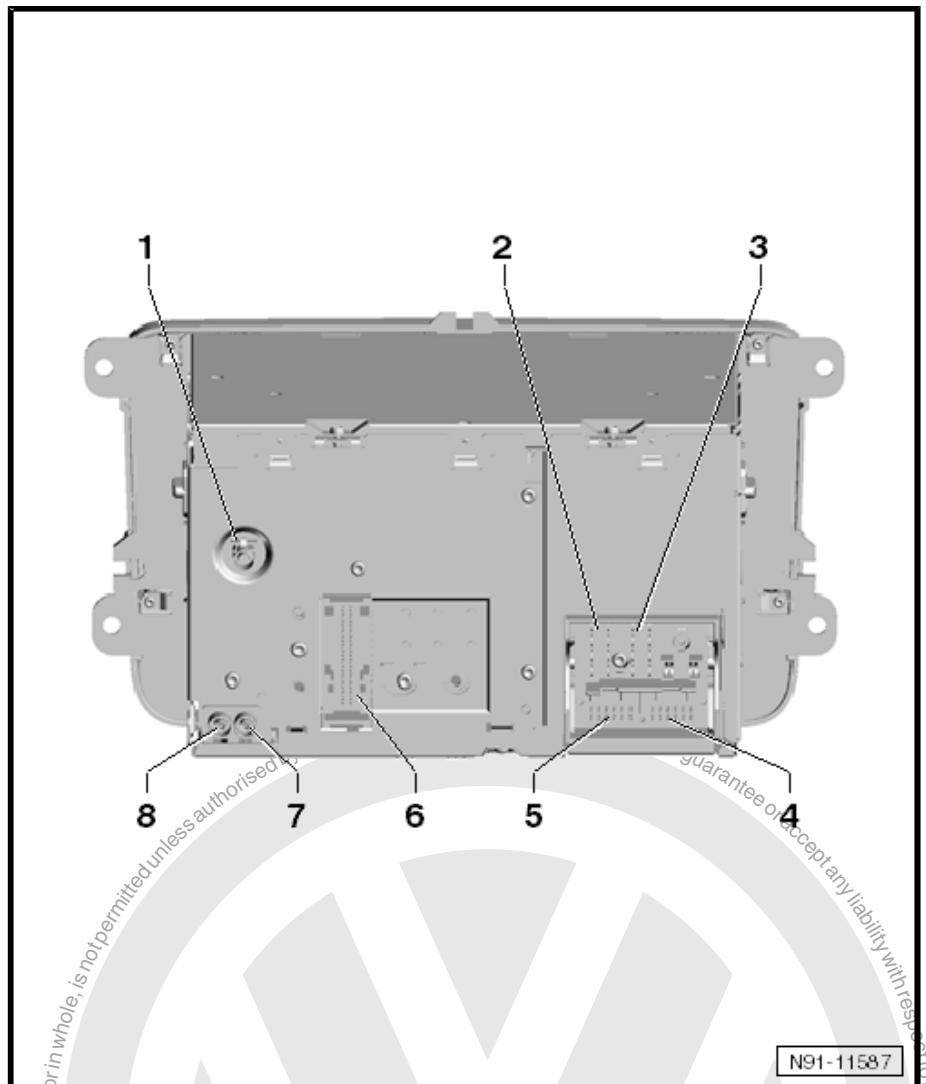
- ☐ Connector assignment [⇒ page 115](#)

### 7 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#) .

### 8 - Antenna Connection

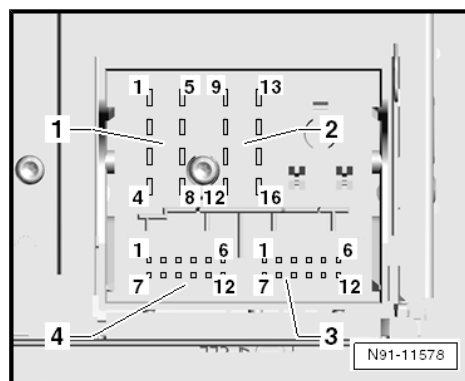
- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#) .





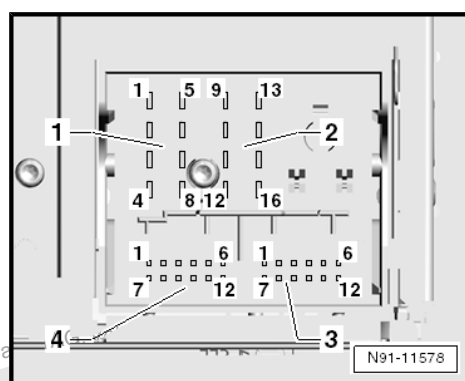
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



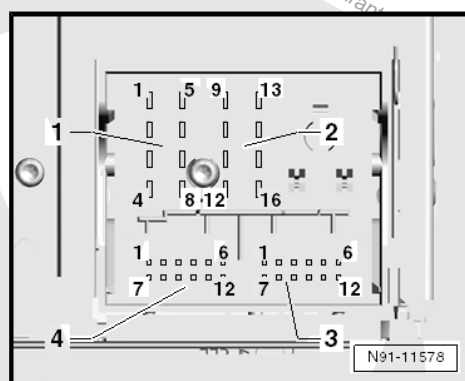
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



### 12-Pin Connector 3, Telephone

- 1 - Microphone Input (-)
- 2 - Right Audio Output (+)
- 3 - Audio Output Ground
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Left Audio Output (+)
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)

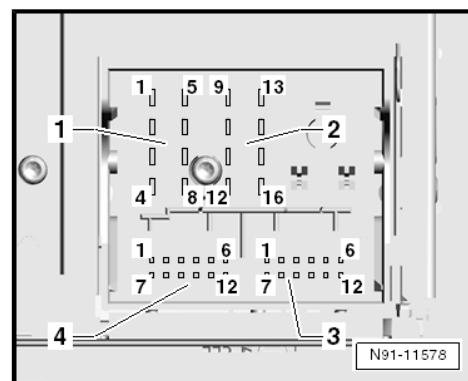






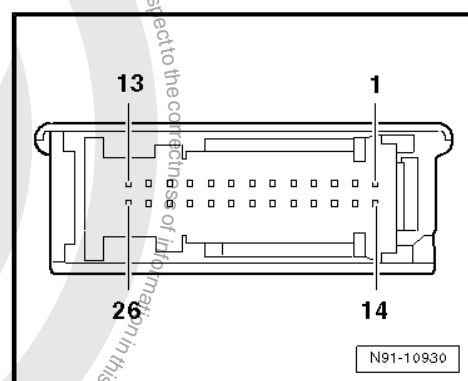
## 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199- , Multimedia System Control Module -J650-

- 1 - Left Audio Input External Audio Source Connection -R199- / Multimedia System Control Module -J650-
- 2 - Audio Input Ground External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 26-Pin Connector 5, Video and LF Input

- 4 - Ground Shield
- 5 - Video Output LF Right
- 6 - Video Output Ground
- 7 - Video Output Sync
- 8 - Video Output Green
- 9 - Ground Shield
- 10 - Video Input LF Right
- 11 - Video Input Ground
- 12 - Video Input Sync
- 13 - Video Input Green
- 17 - Video Output LF Ground
- 18 - Video Output LF Left
- 19 - Video Output RGBS (-)
- 20 - Video Output Blue
- 21 - Video Output Red
- 22 - Video Output LF (-)
- 23 - Video Input LF Left
- 24 - Video input RGBS (-)
- 25 - Video Input Blue
- 26 - Video Input Red





## 2.20 RCD 500

⇒ [“2.20.1 Radio Component Location”, page 116](#)

⇒ [“2.20.2 Connector Assignment, RCD 500”, page 117](#)

### 2.20.1 Radio Component Location

#### 1 - Radio -R-

- ☐ Connector assignment  
⇒ [“2.20.2 Connector Assignment, RCD 500”, page 117](#)
- ☐ Transport protection, activating/deactivating.  
Refer to ⇒ [page 25](#) .
- ☐ Removing and installing. Refer to  
⇒ [“5.15.7 RCD 500”, page 208](#) .
- ☐ Radio functions, adapting.  
Refer to ⇒ [“4.15 RCD 500, Adapting”, page 169](#) .
- ☐ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 24](#) .

#### 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to  
⇒ [“1.4 CD Changer R41”, page 4](#) .

#### 3 - Amplifier -R12-

- ☐ Under the left front seat
- ☐ Refer to  
⇒ [“1.1 Amplifier R12”, page 2](#) .

#### 4 - Antenna -R11- / Radio Antenna 2 -R93-

- ☐ Antenna systems, Sedan. Refer to  
⇒ [“2.2 Antenna Systems”, page 65](#) .

- ☐ Antenna systems, wagon. Refer to ⇒ [“2.3 Antenna Systems”, page 68](#) .

#### 5 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

#### 6 - Rear Bass Speaker

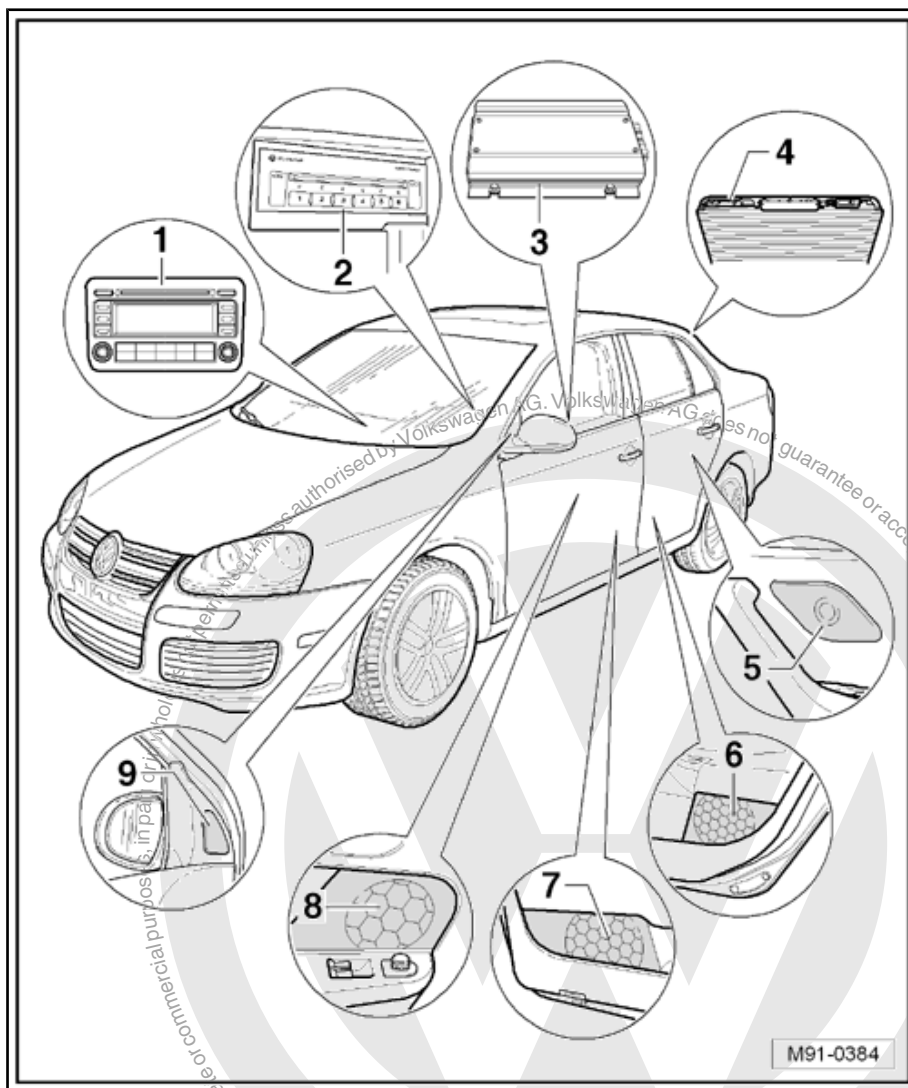
- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

#### 7 - Front Bass Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .

#### 8 - Front Midrange Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#) .





## 9 - Front Treble Speaker

- ☐ Inside the left and right mirror triangles
- ☐ Speaker systems. Refer to ➤ ["1.17 Speakers", page 56](#) .

## 2.20.2 Connector Assignment, RCD 500

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
➤ [page 118](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
➤ [page 118](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
➤ [page 118](#)

### 4 - 12-Pin Connector 4, CD Changer -R41-

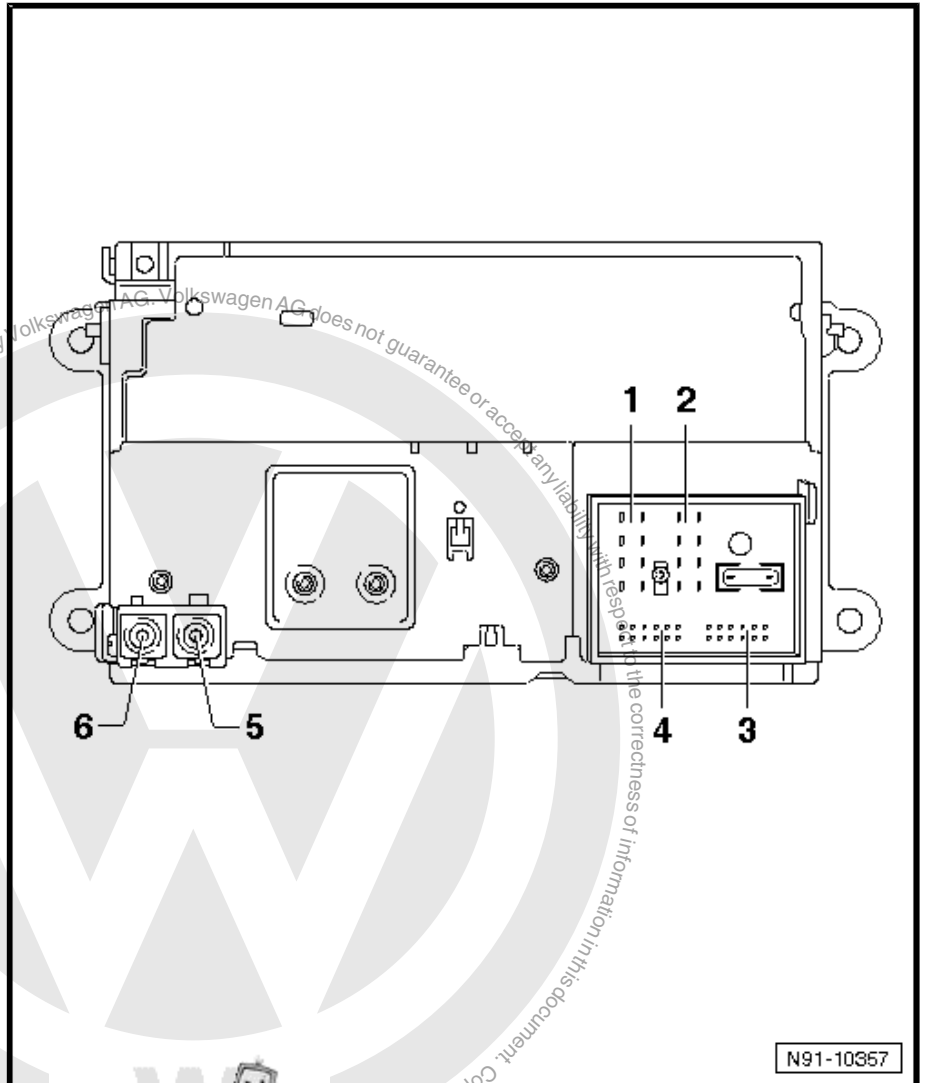
- ☐ Connector assignment  
➤ [page 118](#)

### 5 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to  
➤ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
➤ ["2.3 Antenna Systems", page 68](#) .

### 6 - Antenna Connection

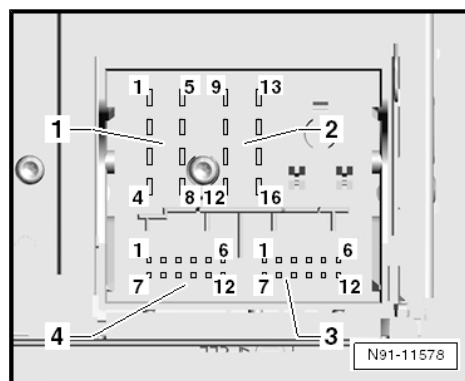
- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
➤ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
➤ ["2.3 Antenna Systems", page 68](#) .





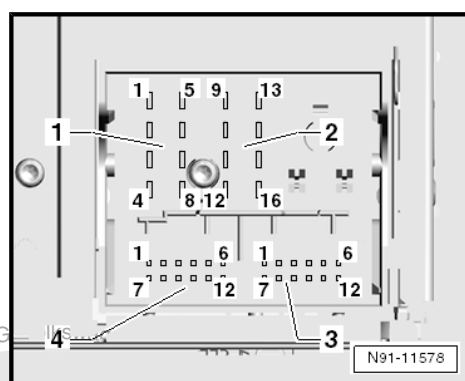
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



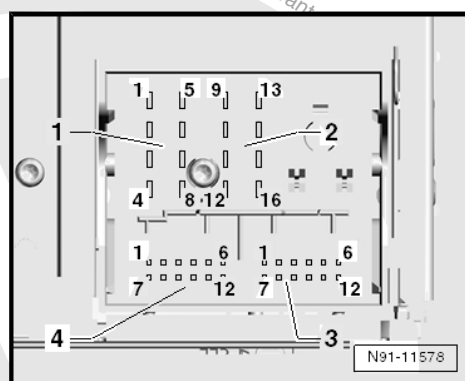
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



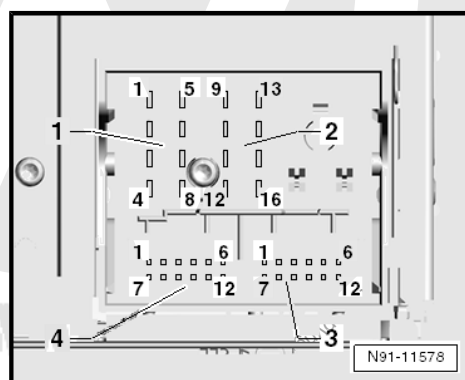
### 12-Pin Connector 3, Telephone

- 6 - Telephone, Low Frequency Signal Input (-)
- 12 - Telephone, Low Frequency Signal Input (+)



### 12-Pin Connector 4, CD Changer -R41-

- 1 - Not Assigned
- 2 - Audio Ground from the CD Changer -R41-
- 3 - Not Assigned
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Not Assigned
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-





## 2.21 RNS 300

⇒ [“2.21.1 Navigation System Component Location”, page 119](#)

⇒ [“2.21.2 Connector Assignment”, page 120](#)

### 2.21.1 Navigation System Component Location

#### 1 - Radio/Navigation Display Unit Control Module -J503-

- ☐ Connector assignment  
⇒ [page 120](#)
- ☐ Removing and installing. Refer to  
⇒ [page 218](#).
- ☐ Functions, adapting.  
Refer to ⇒ [page 169](#).
- ☐ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 39](#).

#### 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to ⇒ [page 4](#).

#### 3 - Antenna -R11-

- ☐ Antenna systems, Sedan. Refer to  
⇒ [page 65](#).
- ☐ Antenna systems, wagon. Refer to ⇒ [page 68](#).

#### 4 - GPS Antenna -R50-

- ☐ Antenna systems, Sedan. Refer to  
⇒ [page 65](#).
- ☐ Antenna systems, wagon. Refer to ⇒ [page 68](#).

#### 5 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to  
⇒ [page 56](#).

#### 6 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#).

#### 7 - Front Bass Speaker

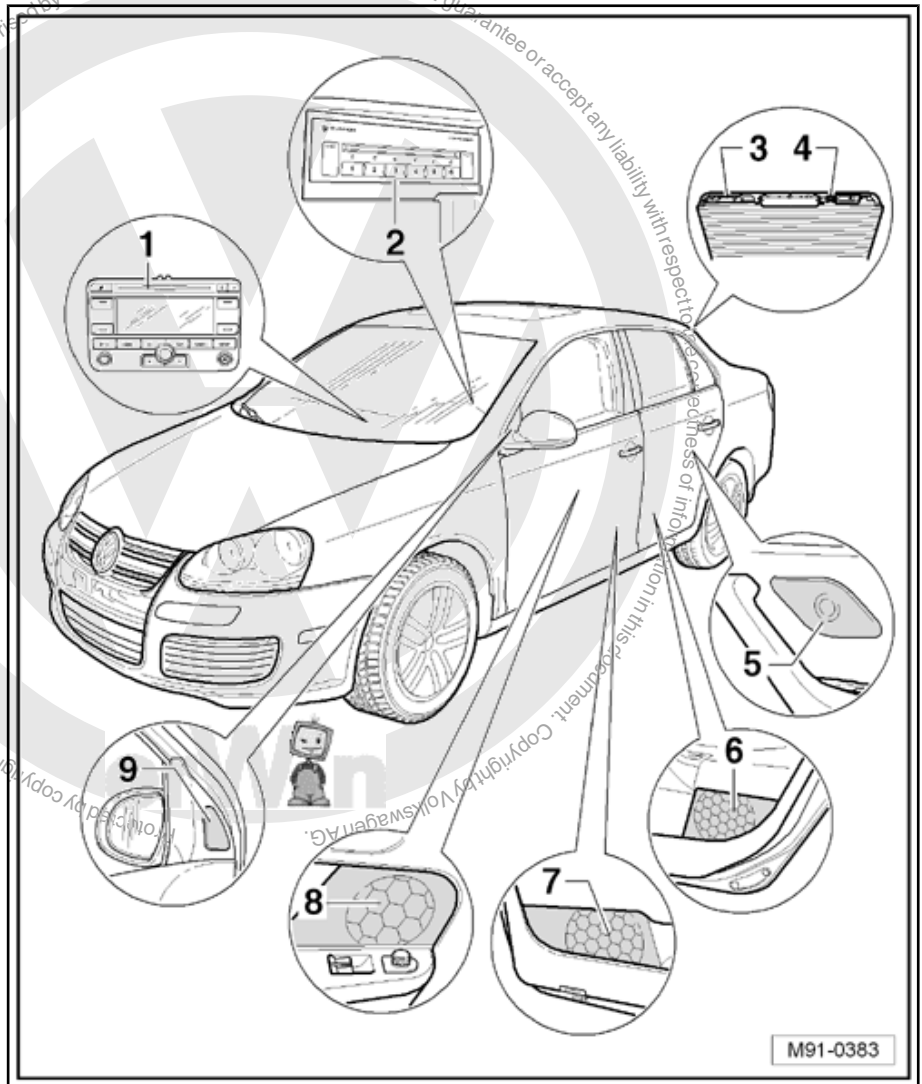
- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#).

#### 8 - Front Midrange Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#).

#### 9 - Front Treble Speaker

- ☐ Inside the left and right mirror triangles
- ☐ Speaker systems. Refer to ⇒ [page 56](#).





## 2.21.2 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 120](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 121](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 121](#)

### 4 - 12-Pin Connector 4, CD Changer -R41-

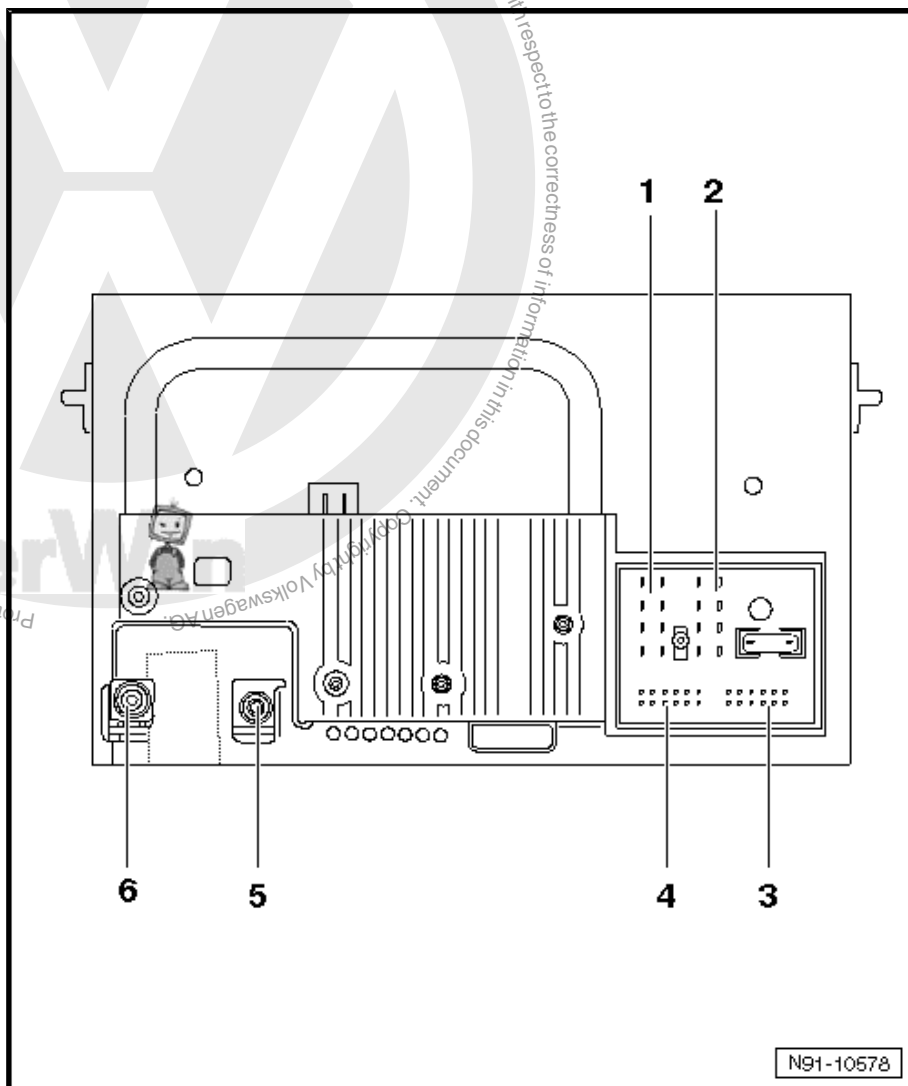
- ☐ Connector assignment  
⇒ [page 121](#)

### 5 - Antenna Connection GPS Antenna -R50-

- ☐ GPS
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to  
⇒ ["2.3 Antenna Systems", page 68](#) .

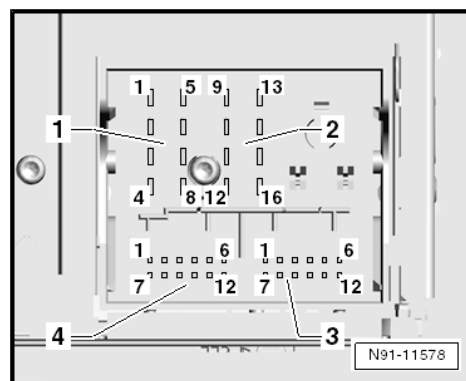
### 6 - Antenna Connection Antenna -R11-

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .



### 8-Pin Connector 1, Speaker Outputs

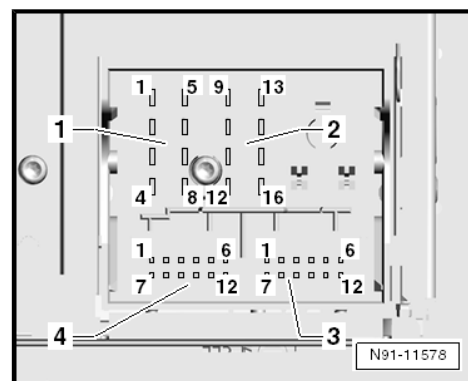
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)





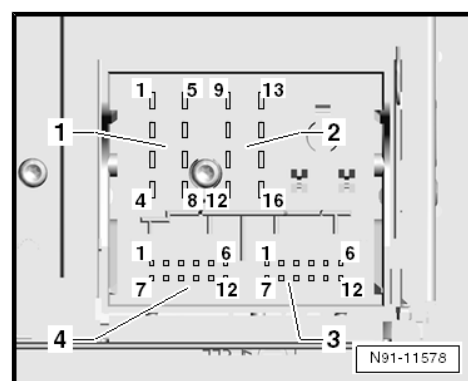
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 11 - Telephone, Mute
- 12 - Terminal 31
- 13 - S-contact
- 14 - Anti-Theft Warning System, Terminal 30
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



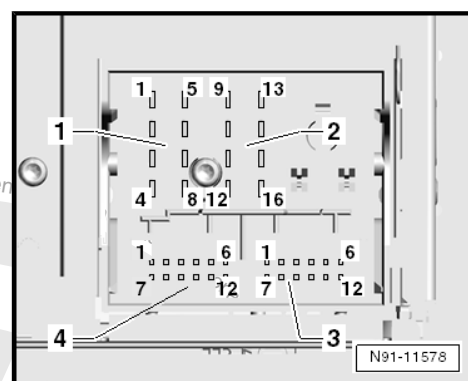
### 12-Pin Connector 3, Telephone

- 6 - Telephone, Low Frequency Signal Input (-)
- 12 - Telephone, Low Frequency Signal Input (+)



### 12-Pin Connector 4, CD Changer -R41-

- 1 - Not Assigned
- 2 - Audio Ground from the CD Changer -R41-
- 3 - Not Assigned
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Not Assigned
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.22 RNS 310

### Sedan

⇒ ["2.22.1 Navigation System Component Location", page 121](#)

### Wagon

⇒ ["2.22.2 Navigation System Component Location", page 123](#)

⇒ ["2.22.3 Connector Assignment", page 124](#)

### 2.22.1 Navigation System Component Location





### 1 - Radio/Navigation Display Unit Control Module -J503-

- ☐ Connector assignment  
⇒ [page 124](#)
- ☐ Removing and installing. Refer to  
⇒ [page 220](#) .
- ☐ Functions, adapting. Refer to  
⇒ [page 170](#) .
- ☐ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 42](#) .

### 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to ⇒ [page 4](#) .

### 3 - Multimedia System Control Module -J650-

- ☐ in center console
- ☐ Refer to ⇒ [page 10](#) .

### 4 - External Audio Source Connection -R199-

- ☐ in center console
- ☐ Refer to ⇒ [page 7](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

- ☐ Antenna systems, Sedan. Refer to  
⇒ [page 65](#) .

### 6 - GPS Antenna -R50-

- ☐ on the rear window
- ☐ Antenna systems, Sedan. Refer to  
⇒ [page 65](#) .

### 7 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#) .

### 8 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#) .

### 9 - Front Bass Speaker

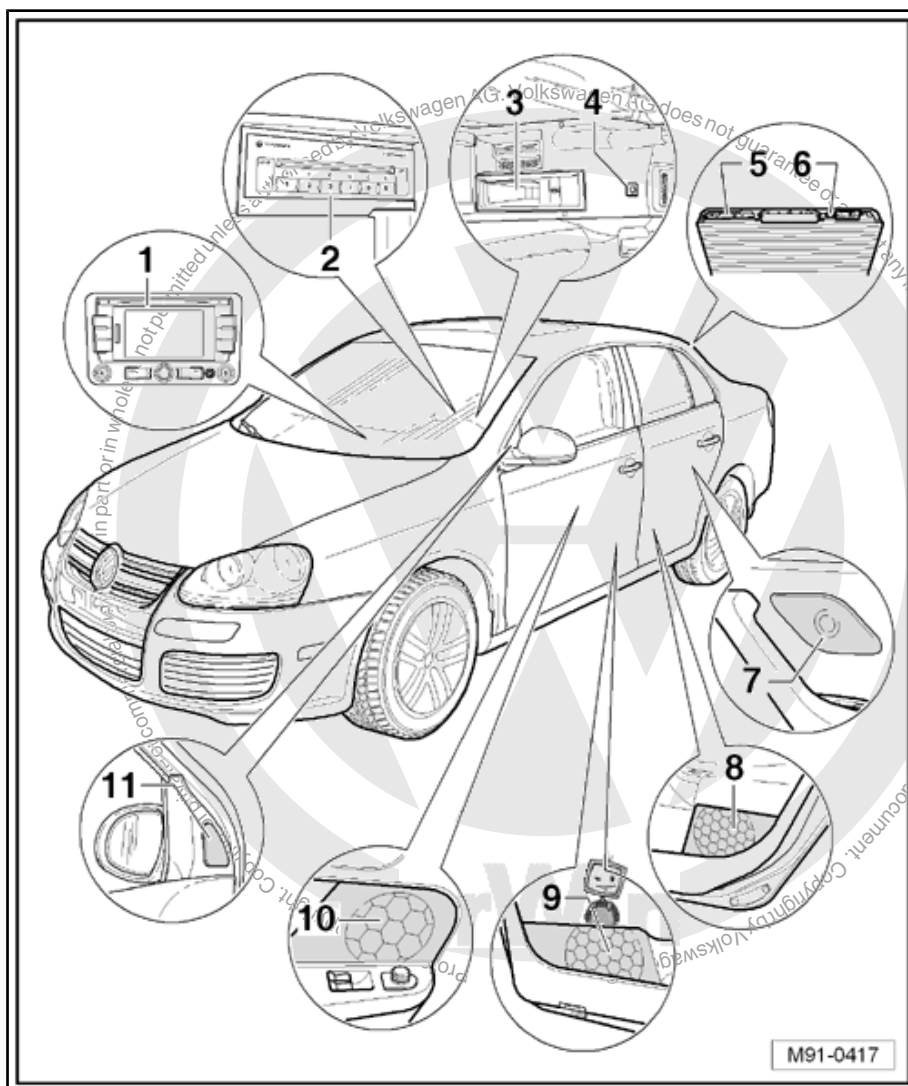
- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#) .

### 10 - Front Midrange Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ [page 56](#) .

### 11 - Front Treble Speaker

- ☐ Inside the left and right mirror triangles
- ☐ Speaker systems. Refer to ⇒ [page 56](#) .





## 2.22.2 Navigation System Component Location

### 1 - Multifunction Steering Wheel

- ☐ Refer to ➤ [page 10](#) .

### 2 - Radio/Navigation Display Unit Control Module -J503-

- ☐ Connector assignment ➤ [page 124](#)
- ☐ Removing and installing. Refer to ➤ [page 220](#) .
- ☐ Functions, adapting. Refer to ➤ [page 170](#) .
- ☐ Electronic anti-theft protection, deactivating. Refer to ➤ [page 42](#) .

### 3 - External Audio Source Connection -R199-

- ☐ On the front of the RNS (Radio Navigation System)
- ☐ "RNS 315" ➤ Owner's Manual

### 4 - Multimedia System Control Module -J650-

- ☐ in the glove compartment
- ☐ Refer to ➤ [page 10](#) .

### 5 - GPS Antenna -R50-

- ☐ Roof Antenna
- ☐ Antenna systems, wagon. Refer to ➤ [page 68](#) .

### 6 - Antenna -R11- / Radio Antenna 2 -R93-

- ☐ Antenna systems, wagon. Refer to ➤ [page 68](#) .

### 7 - Rear Speaker

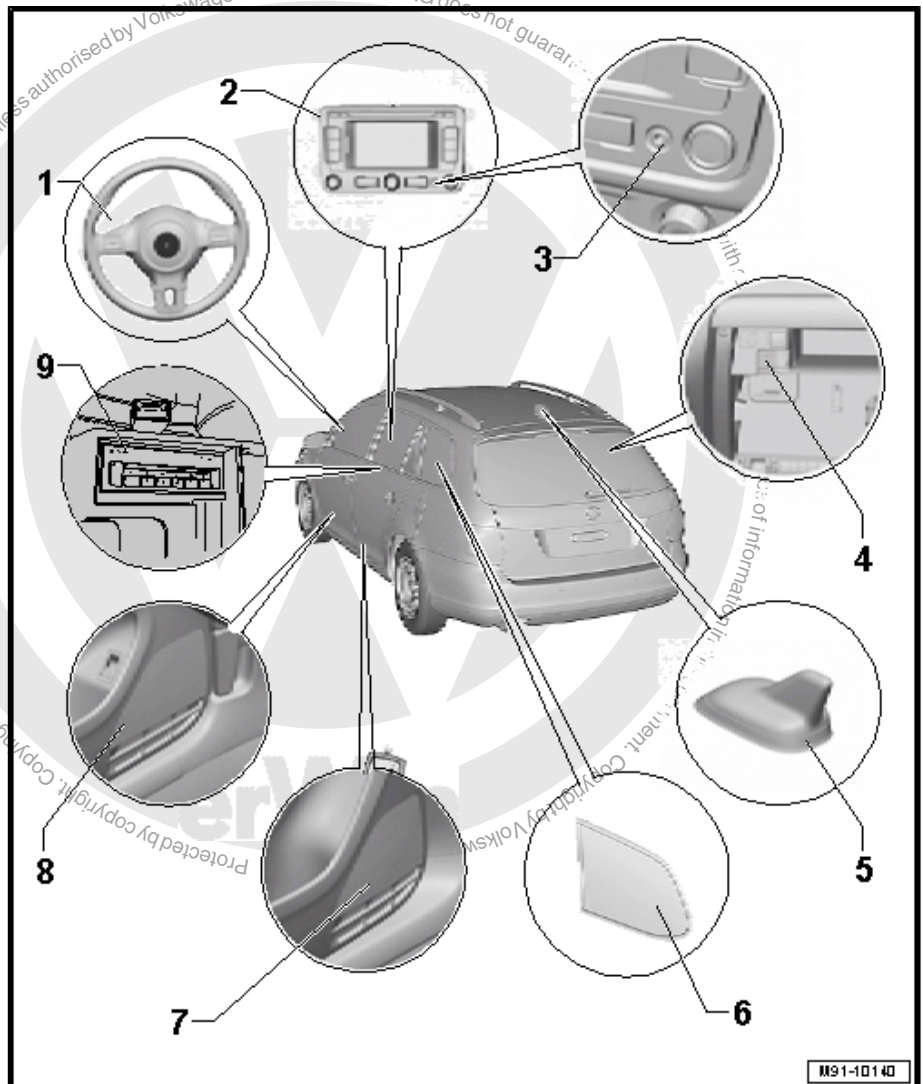
- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ➤ [page 56](#) .

### 8 - Front Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ➤ [page 56](#) .

### 9 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to ➤ [page 4](#) .





## 2.22.3 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 124](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 125](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 125](#)

### 4 - 12-Pin Connector 4, CD Changer -R41-

- ☐ Connector assignment  
⇒ [page 125](#)

### 5 - Antenna Connection GPS Antenna -R50-

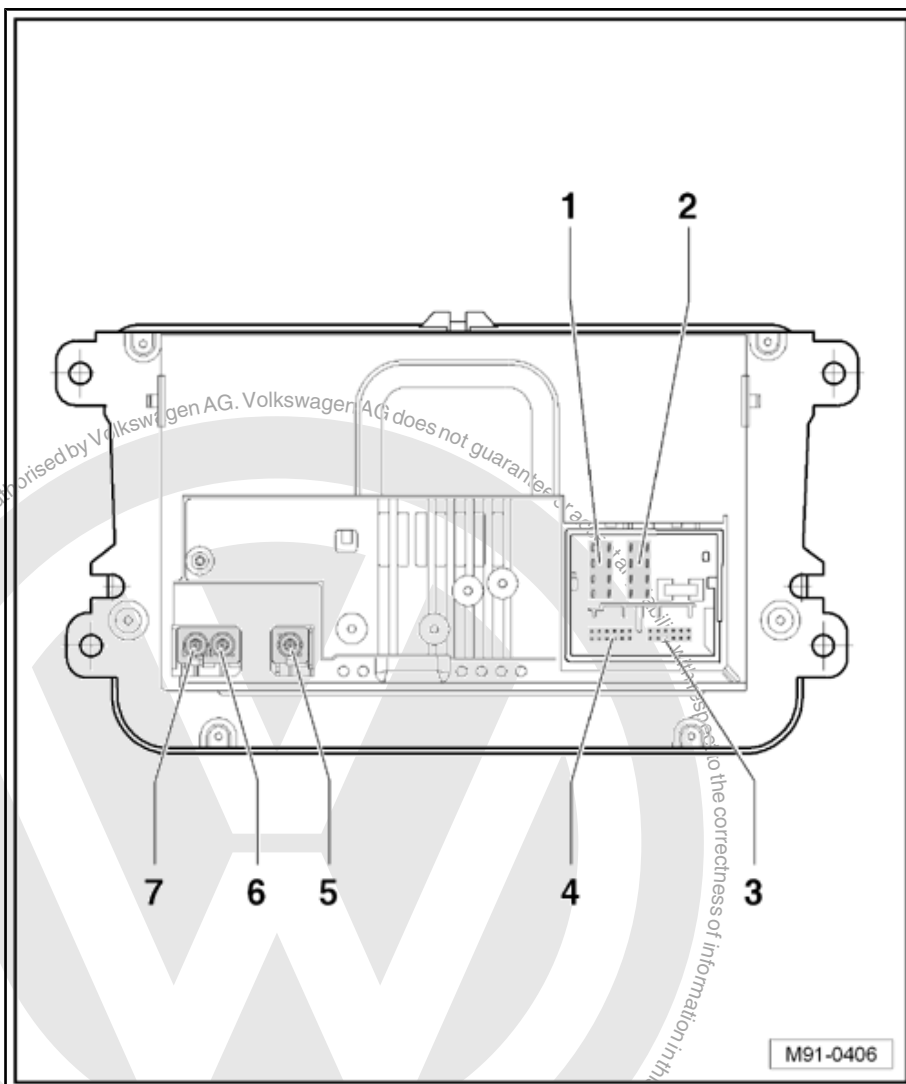
- ☐ GPS
- ☐ Antenna systems, Sedan. Refer to:  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to:  
⇒ ["2.3 Antenna Systems", page 68](#) .

### 6 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to:  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to:  
⇒ ["2.3 Antenna Systems", page 68](#) .

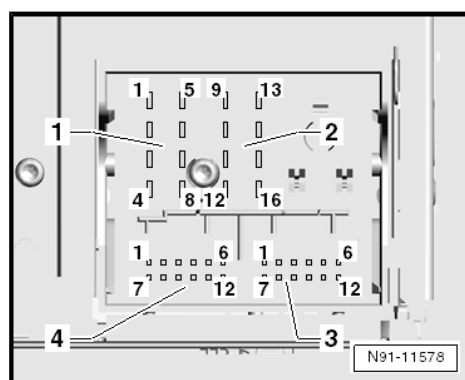
### 7 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to:  
⇒ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to:  
⇒ ["2.3 Antenna Systems", page 68](#) .



### 8-Pin Connector 1, Speaker Outputs

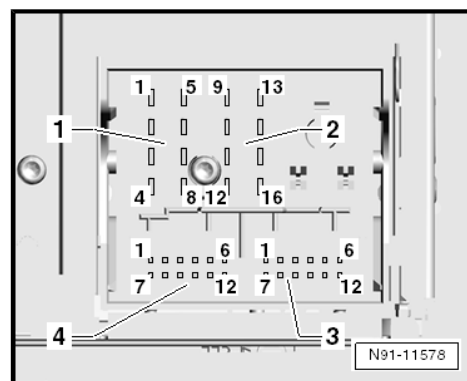
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)





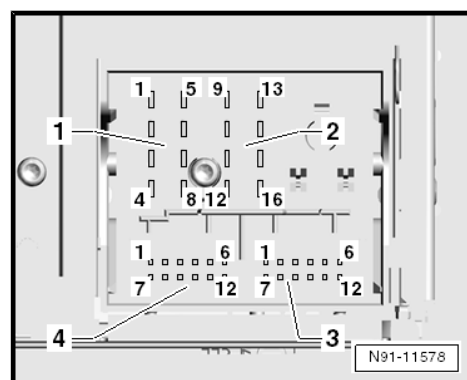
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



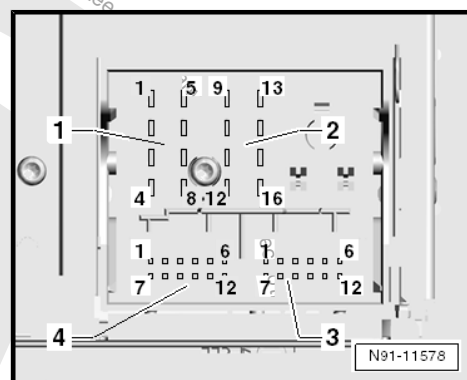
### 12-Pin Connector 3, Telephone

- 1 - Microphone Input (-)
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Not Assigned
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)



### 12-Pin Connector 4, CD Changer -R41-

- 1 - Left Video Input
- 2 - Audio Input Ground
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.23 RNS 315

⇒ ["2.23.1 Navigation System Component Location", page 125](#)

⇒ ["2.23.2 Connector Assignment", page 127](#)

### 2.23.1 Navigation System Component Location



## 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ ["1.11 Multifunction Steering Wheel", page 10](#) .

## 2 - Radio/Navigation Display Unit Control Module -J503-

- ❑ Connector assignment  
⇒ ["2.23.2 Connector Assignment", page 127](#) .
- ❑ Removing and installing. Refer to  
⇒ ["5.16.5 RNS 315", page 222](#) .
- ❑ Functions, adapting.  
Refer to  
⇒ ["4.18 RNS 315, Adapting", page 170](#) .
- ❑ Electronic anti-theft protection, deactivating.  
Refer to ⇒ [page 46](#) .

## 3 - External Audio Source Connection -R199-

- ❑ On the front of the RNS (Radio Navigation System)
- ❑ "RNS 315" Owner's Manual

## 4 - Multimedia System Control Module -J650-

- ❑ in the glove compartment
- ❑ Refer to  
⇒ ["1.12 Multimedia System Control Module J650", page 10](#) .

## 5 - GPS Antenna -R50-

- ❑ Roof Antenna
- ❑ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .

## 6 - Antenna -R11- / Radio Antenna 2 -R93-

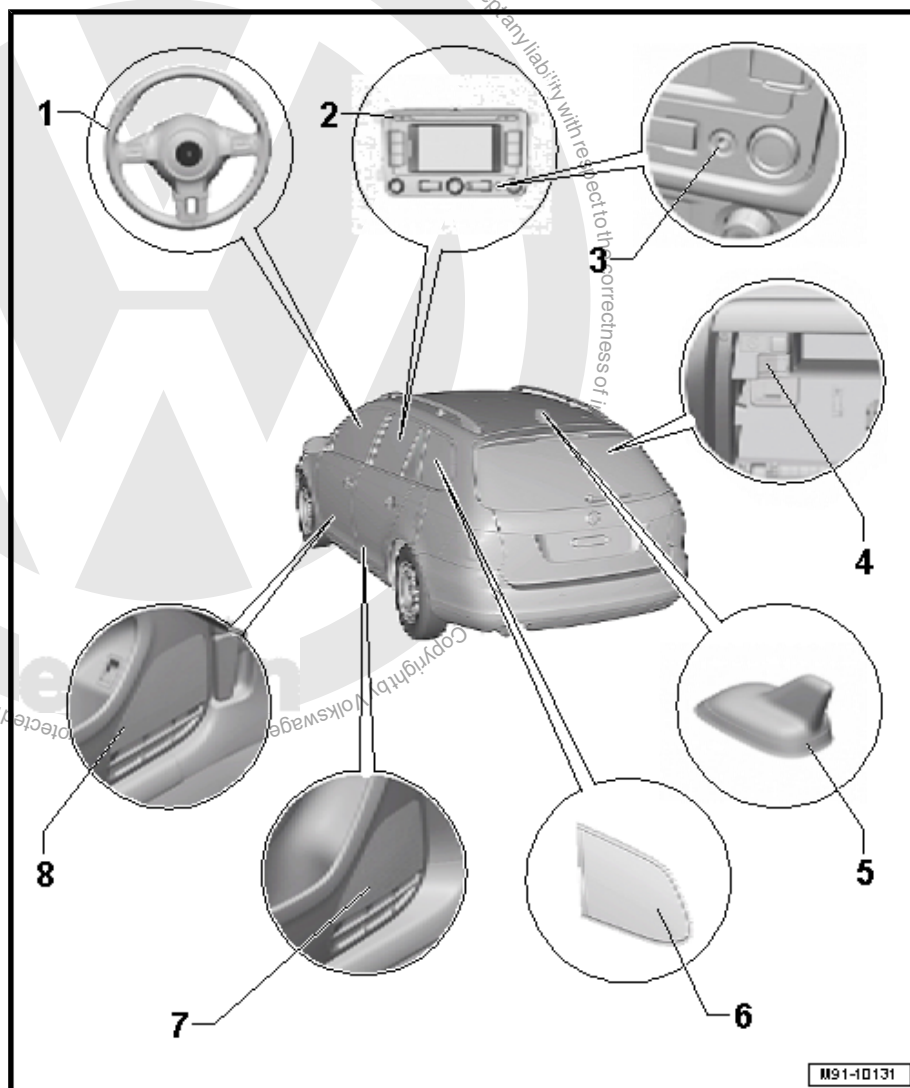
- ❑ Antenna systems, wagon. Refer to ⇒ ["2.3 Antenna Systems", page 68](#) .

## 7 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .

## 8 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#) .





## 2.23.2 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 127](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 128](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 128](#)

### 4 - 12-pin Connector 4, CD Changer -R41- , Multimedia System Control Module -J650-

- ☐ Connector assignment  
⇒ [page 128](#)

### 5 - Antenna Connection GPS Antenna -R50-

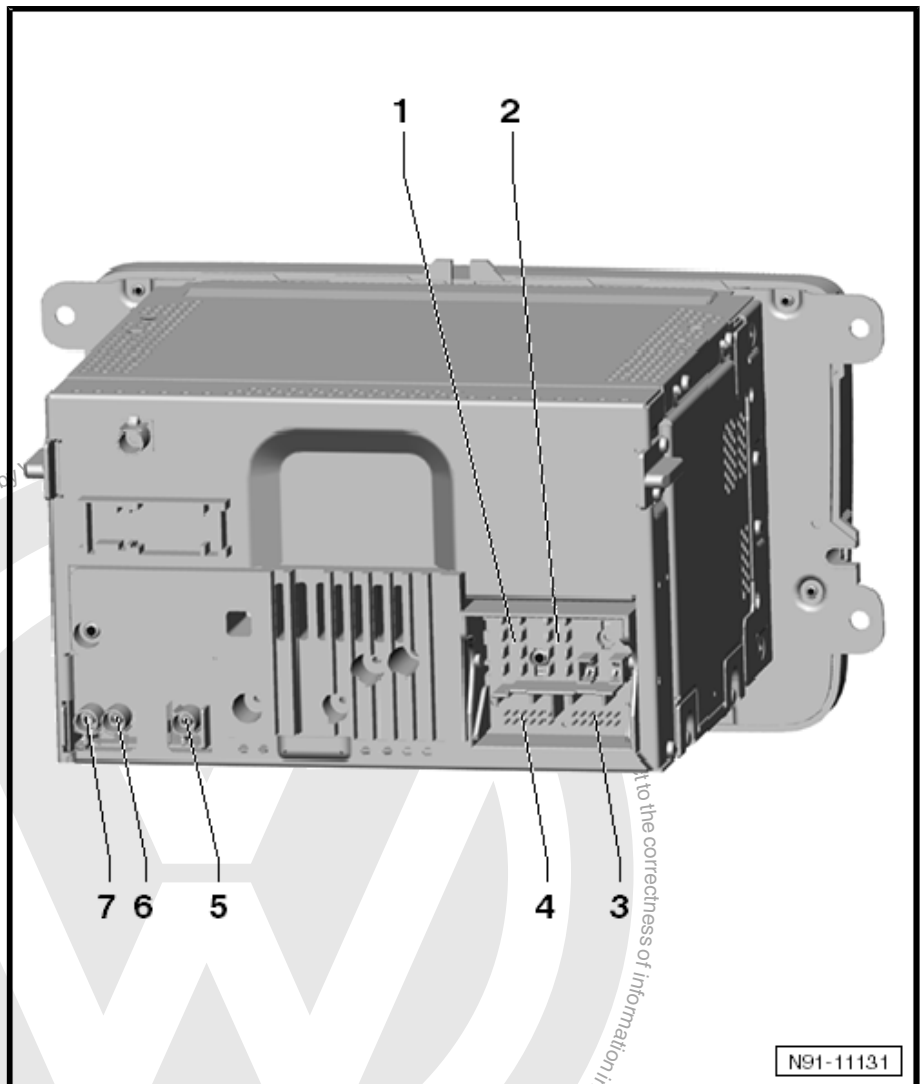
- ☐ GPS
- ☐ Antenna systems, wagon. Refer to [page 68](#).

### 6 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, wagon. Refer to [page 68](#).

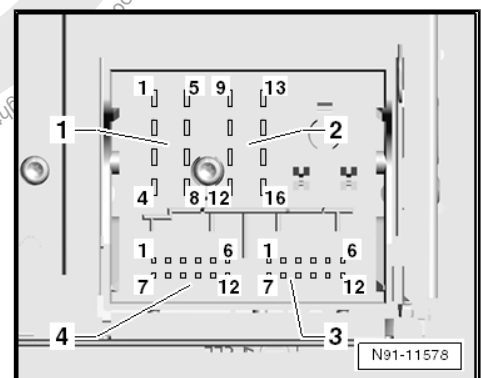
### 7 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, wagon. Refer to [page 68](#).



### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)

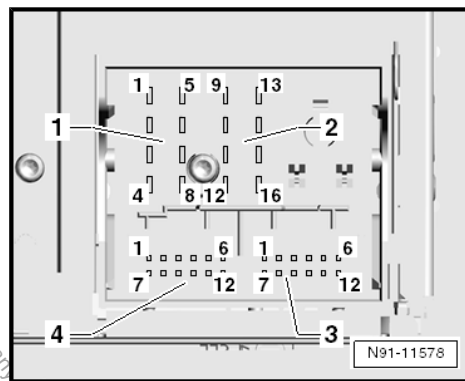






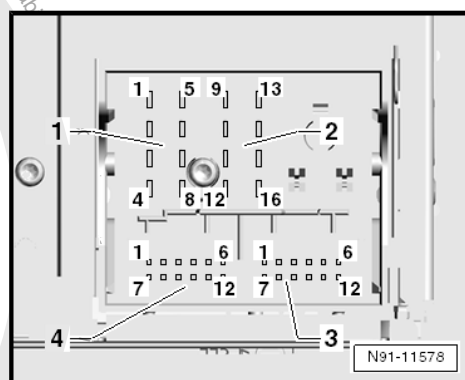
## 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



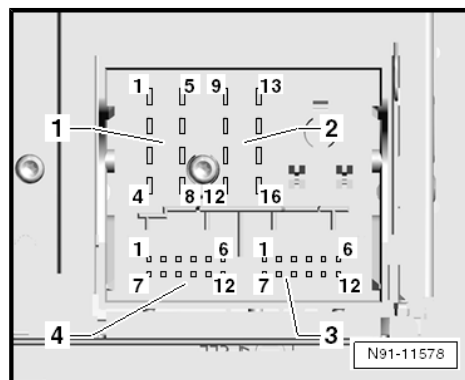
## 12-Pin Connector 3, Telephone

- 1 - Microphone Input (-)
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Not Assigned
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)



## 12-pin Connector 4, CD Changer -R41- , Multimedia System Control Module -J650-

- 1 - Left Audio Input Multimedia System Control Module -J650-
- 2 - Audi Input Ground Multimedia System Control Module - J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



## 2.24 RNS 315+

⇒ ["2.24.1 Navigation System Component Location", page 128](#)

⇒ ["2.24.2 Connector Assignment", page 130](#)

### 2.24.1 Navigation System Component Location



### 1 - Multifunction Steering Wheel

- ❑ Refer to ➤ [page 10](#) .

### 2 - Radio/Navigation Display Unit Control Module -J503-

- ❑ Connector assignment ➤ [page 130](#)
- ❑ Removing and installing. Refer to ➤ [page 224](#) .
- ❑ Functions, adapting. Refer to ➤ [page 170](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ➤ [page 48](#) .

### 3 - USB Connection

- ❑ On the back of the RNS (Radio Navigation System)

### 4 - GPS Antenna -R50-

- ❑ Antenna systems, wagon. Refer to ➤ [page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

- ❑ Antenna systems, wagon. Refer to ➤ [page 68](#) .

### 6 - Rear Speaker

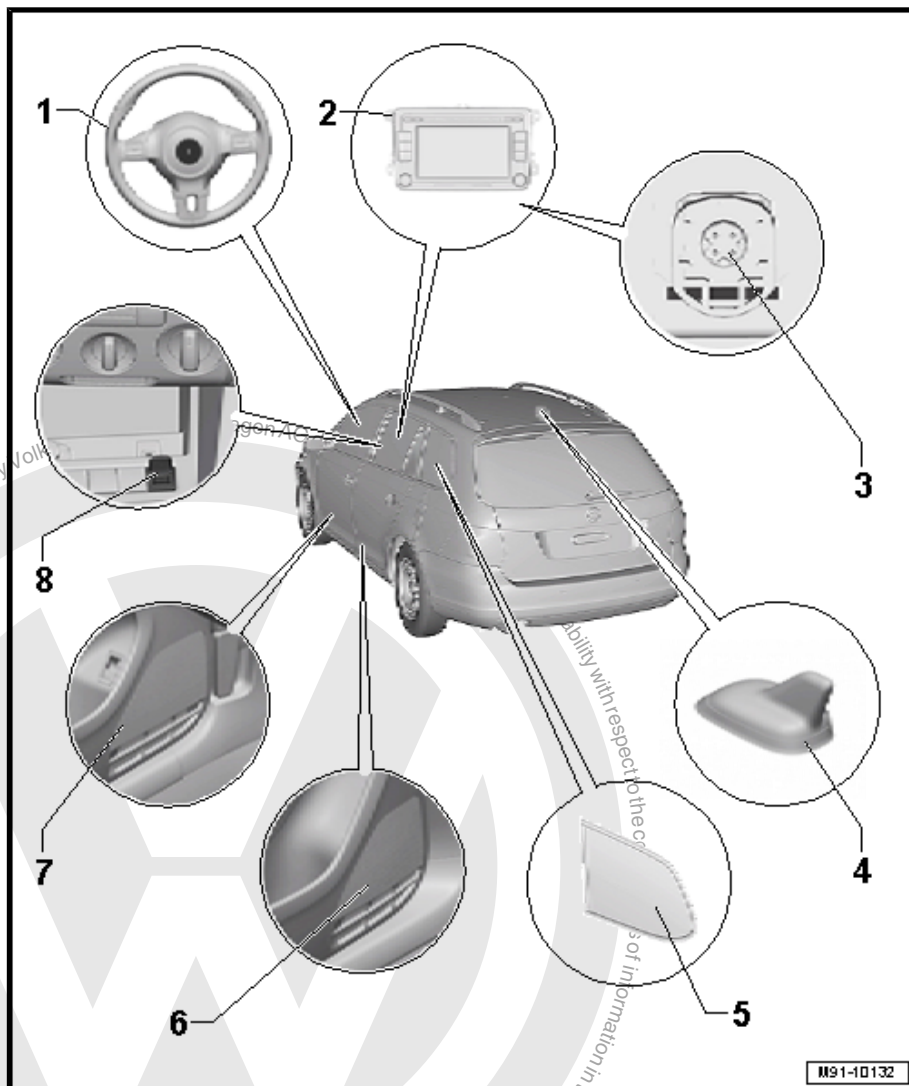
- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ➤ [page 56](#) .

### 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ➤ [page 56](#) .

### 8 - External Audio Source Connection 2 -R231- , USB Port

- ❑ in center console, front
- ❑ Refer to ➤ [page 8](#) .





## 2.24.2 Connector Assignment

### 1 - 26-pin Connector, Video and LF Input

- ☐ Connector assignment  
⇒ [page 131](#)

### 2 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
⇒ [page 131](#)

### 3 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
⇒ [page 131](#)

### 4 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
⇒ [page 132](#)

### 5 - 12-pin Connector 4, CD Changer -R41- , Multimedia System Control Module -J650-

- ☐ Connector assignment  
⇒ [page 132](#)

### 6 - USB Connection

- ☐ Connector assignment  
⇒ [page 132](#)

### 7 - Antenna Connection

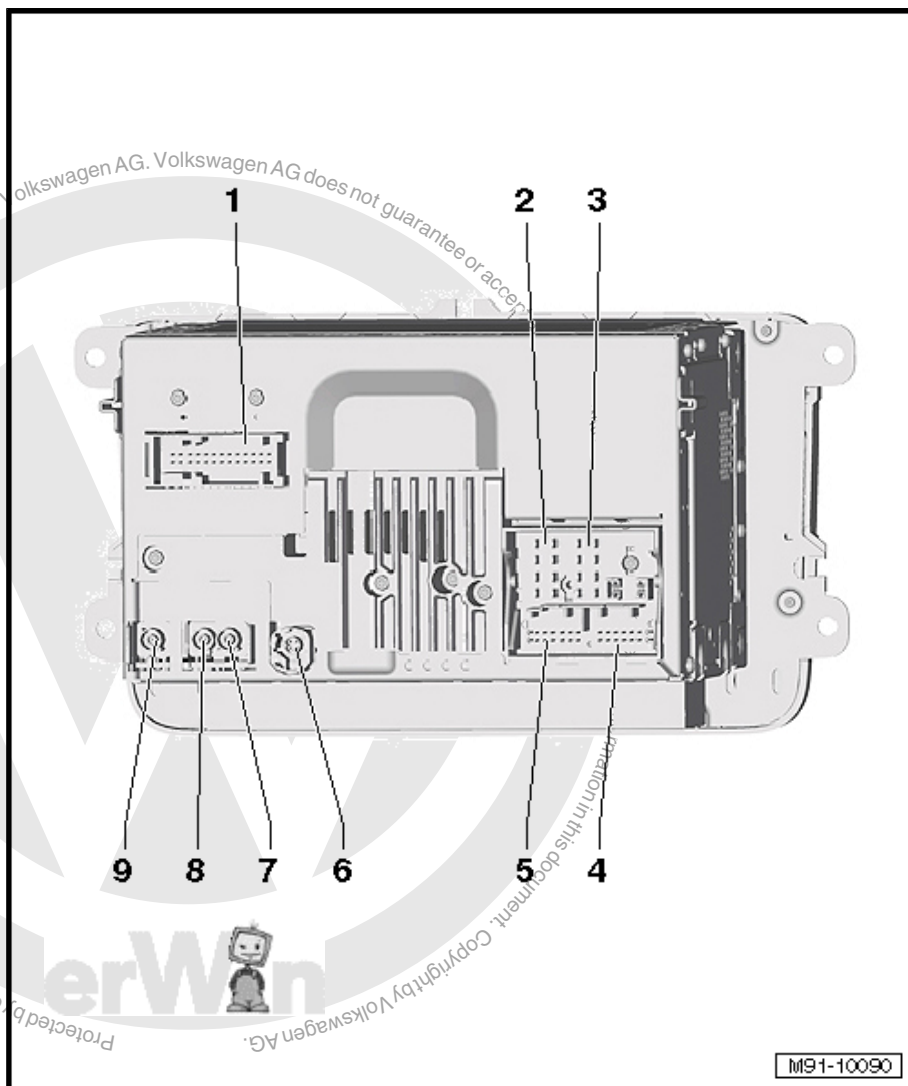
- ☐ FM2
- ☐ Antenna systems, wagon. Refer to ⇒ [page 68](#) .

### 8 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, wagon. Refer to ⇒ [page 68](#) .

### 9 - Antenna Connection GPS Antenna -R50-

- ☐ GPS
- ☐ Antenna systems, wagon. Refer to ⇒ [page 68](#) .

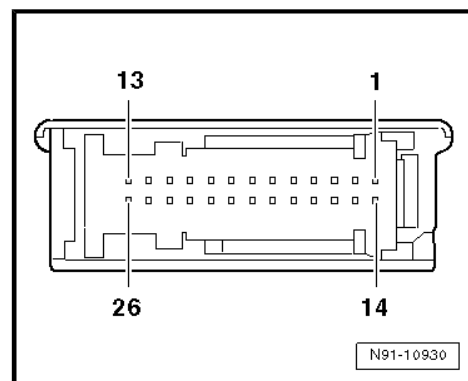






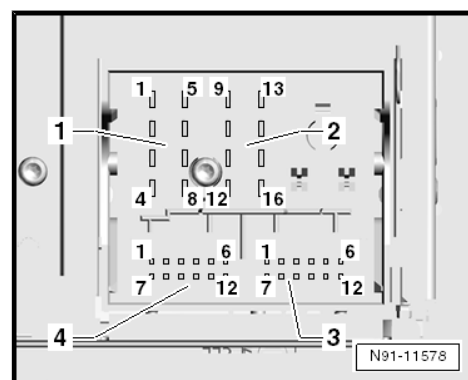
## 26-pin Connector, Video and LF Input

- 4 - Video Input RGBS Ground
- 6 - Switch-on signal from the Telephone Baseplate -R126-
- 7 - Description of key functions from Telephone Baseplate -R126-
- 8 - Antenna/diagnosis to Telephone Baseplate -R126-
- 9 - Video Input RGBS Ground
- 11 - Video Input Ground
- 12 - Video Input Sync
- 13 - Video Input Green
- 20 - Terminal 30, switched, to Telephone Baseplate -R126-
- 24 - Video Input RGBS Ground
- 25 - Video Input Blue
- 26 - Video Input Red



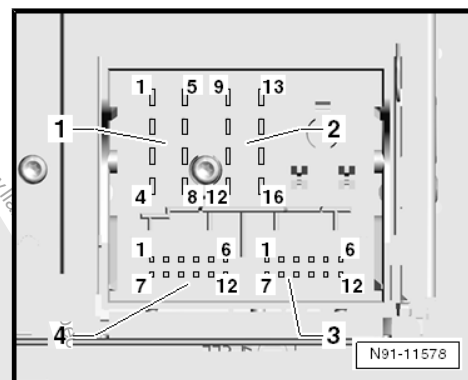
## 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



## 8-Pin Connector 2, CAN Bus, Voltage Supply

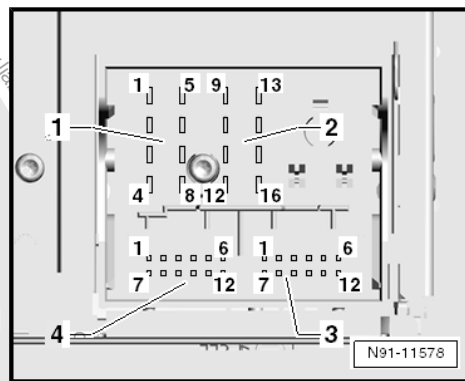
- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system





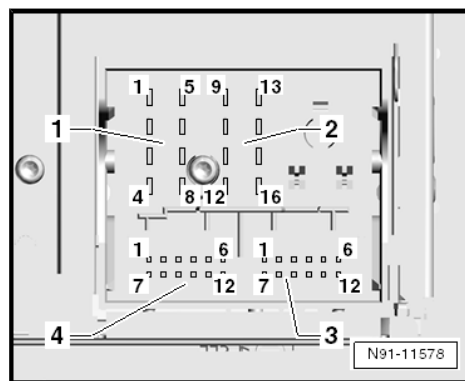
### 12-Pin Connector 3, Telephone

- 1 - Microphone Input (-)
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Not Assigned
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Not Assigned
- 9 - Not Assigned
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)



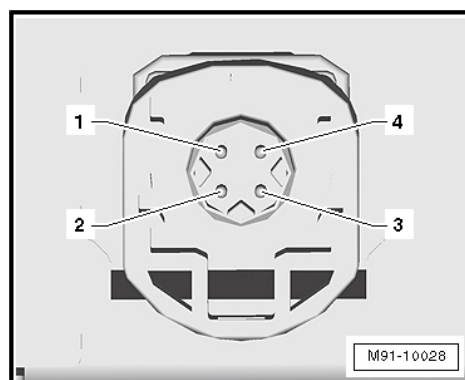
### 12-pin Connector 4, CD Changer -R41- , Multimedia System Control Module -J650-

- 1 - Left Audio Input Multimedia System Control Module -J650-
- 2 - Audi Input Ground Multimedia System Control Module - J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



### 4-Pin USB Connection

- 1 - Ground
- 2 - D (-)
- 3 - VCC (+5 V)
- 4 - D (+)





## 2.25 RCD 510

Sedan ➤ [“2.25.1 Component Location Overview”, page 133](#)

Wagon ➤ [“2.25.2 Component Location Overview”, page 134](#)

➤ [“2.25.3 Connector Overview”, page 135](#)

### 2.25.1 Component Location Overview

#### 1 - Radio -R-

- ☐ Connector assignment  
➤ [“2.25.3 Connector Overview”, page 135](#)
- ☐ Transport protection, activating/deactivating. Refer to ➤ [page 35](#).
- ☐ Removing and installing. Refer to ➤ [“5.16.1 RCD 510”, page 214](#).
- ☐ Radio functions, adapting. Refer to ➤ [“4.20 RCD 510 Functions, Adapting”, page 170](#).
- ☐ Electronic anti-theft protection, deactivating. Refer to ➤ [page 34](#).

#### 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to ➤ [“1.4 CD Changer R41”, page 4](#).

#### 3 - Multimedia System Control Module -J650-

- ☐ in center console
- ☐ Refer to ➤ [“1.12 Multimedia System Control Module J650”, page 10](#).

#### 4 - External Audio Source Connection -R199-

- ☐ in center console
- ☐ Refer to ➤ [“1.7 External Audio Source Connection R199”, page 7](#).

#### 5 - Amplifier -R12-

- ☐ Under the left front seat
- ☐ Refer to ➤ [“1.1 Amplifier R12”, page 2](#)

#### 6 - Antenna -R11- / Radio Antenna 2 -R93-

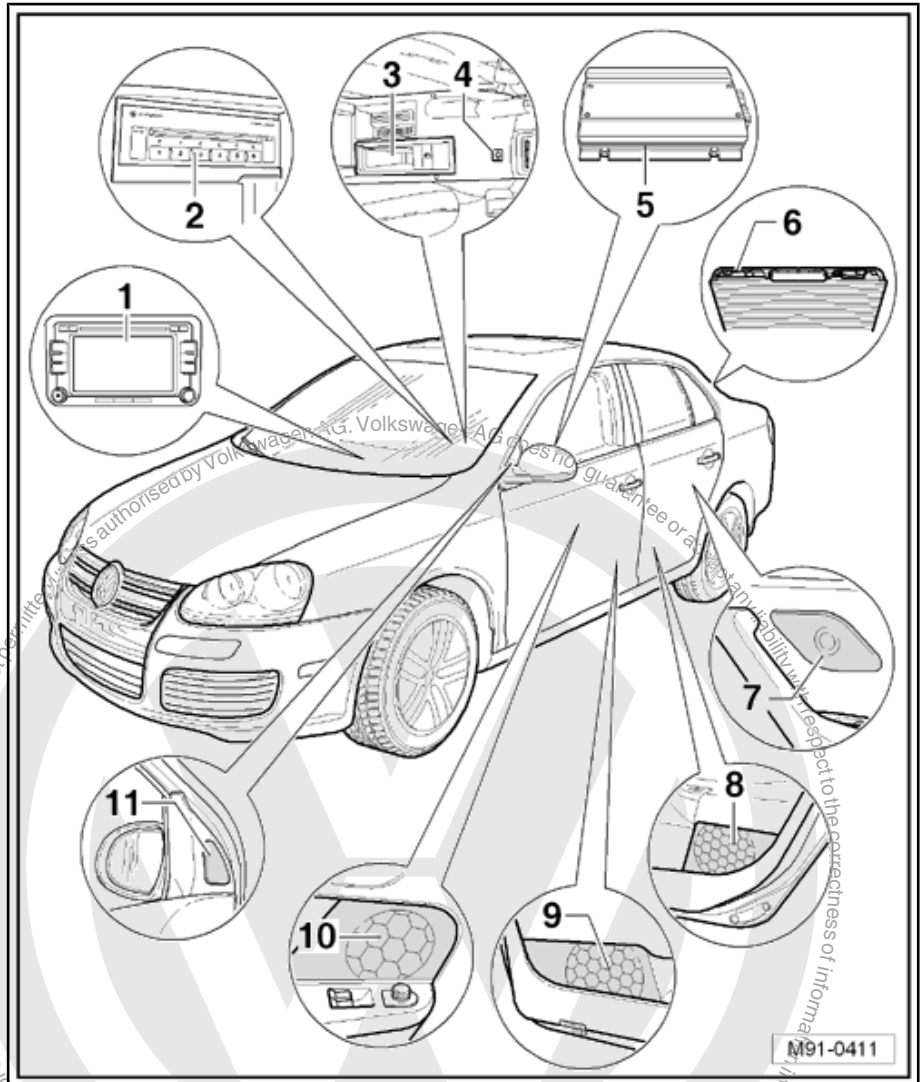
- ☐ Antenna systems, Sedan. Refer to ➤ [“2.2 Antenna Systems”, page 65](#).

#### 7 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ➤ [page 56](#).

#### 8 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ➤ [page 56](#).





## 9 - Front Bass Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ➤ [page 56](#) .

## 10 - Front Midrange Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ➤ [page 56](#) .

## 11 - Front Treble Speaker

- ❑ Inside the left and right mirror triangle/A-pillar
- ❑ Speaker systems. Refer to ➤ [page 56](#) .

## 2.25.2 Component Location Overview

### 1 - Multifunction Steering Wheel

- ❑ Refer to ➤ ["1.11 Multifunction Steering Wheel", page 10](#) .

### 2 - Radio-R-

- ❑ Connector assignment ➤ ["2.25.3 Connector Overview", page 135](#)
- ❑ Transport protection, activating/deactivating. Refer to ➤ [page 35](#) .
- ❑ Removing and installing. Refer to ➤ ["5.16.1 RCD 510", page 214](#) .
- ❑ Radio functions, adapting. Refer to ➤ ["4.20 RCD 510 Functions, Adapting", page 170](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ➤ [page 34](#) .

### 3 - Multimedia System Control Module -J650-

- ❑ in the glove compartment
- ❑ Refer to ➤ ["1.12 Multimedia System Control Module J650", page 10](#) .

### 4 - Roof Antenna

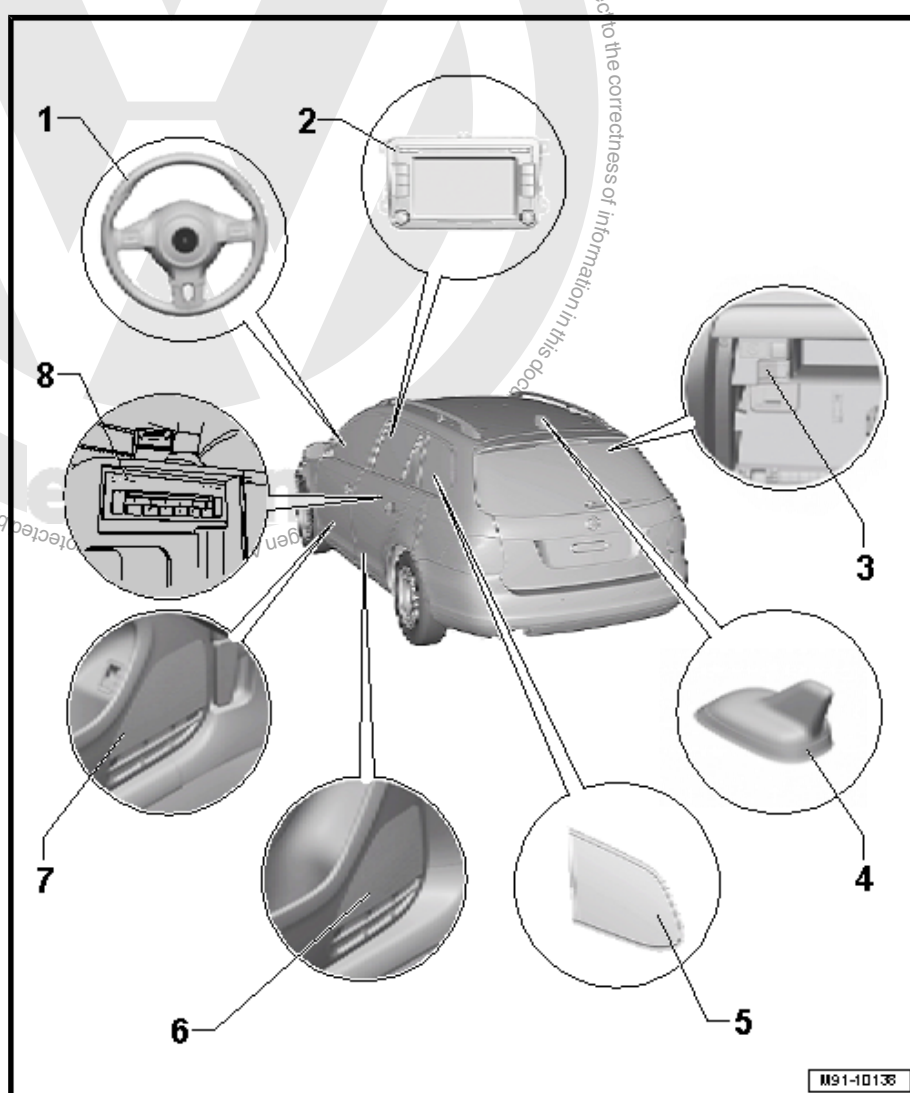
- ❑ Antenna systems, wagon. Refer to ➤ ["2.3 Antenna Systems", page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

- ❑ Antenna systems, wagon. Refer to ➤ ["2.3 Antenna Systems", page 68](#) .

### 6 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ➤ ["1.17 Speakers", page 56](#) .





## 7 - Front Speaker

- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ➤ ["1.17 Speakers", page 56](#) .

## 8 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to ➤ ["1.4 CD Changer R41 ", page 4](#) .

## 2.25.3 Connector Overview

### 1 - Antenna Connection

- ☐ DAB
- ☐ Antenna systems, Sedan. Refer to ➤ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ➤ ["2.3 Antenna Systems", page 68](#) .

### 2 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment ➤ [page 136](#)

### 3 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment ➤ [page 136](#)

### 4 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment ➤ [page 136](#)

### 5 - 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection - R199- , Multimedia System Control Module -J650-

- ☐ Connector assignment ➤ [page 137](#)

### 6 - 26-Pin Connector 5, Video and LF Input

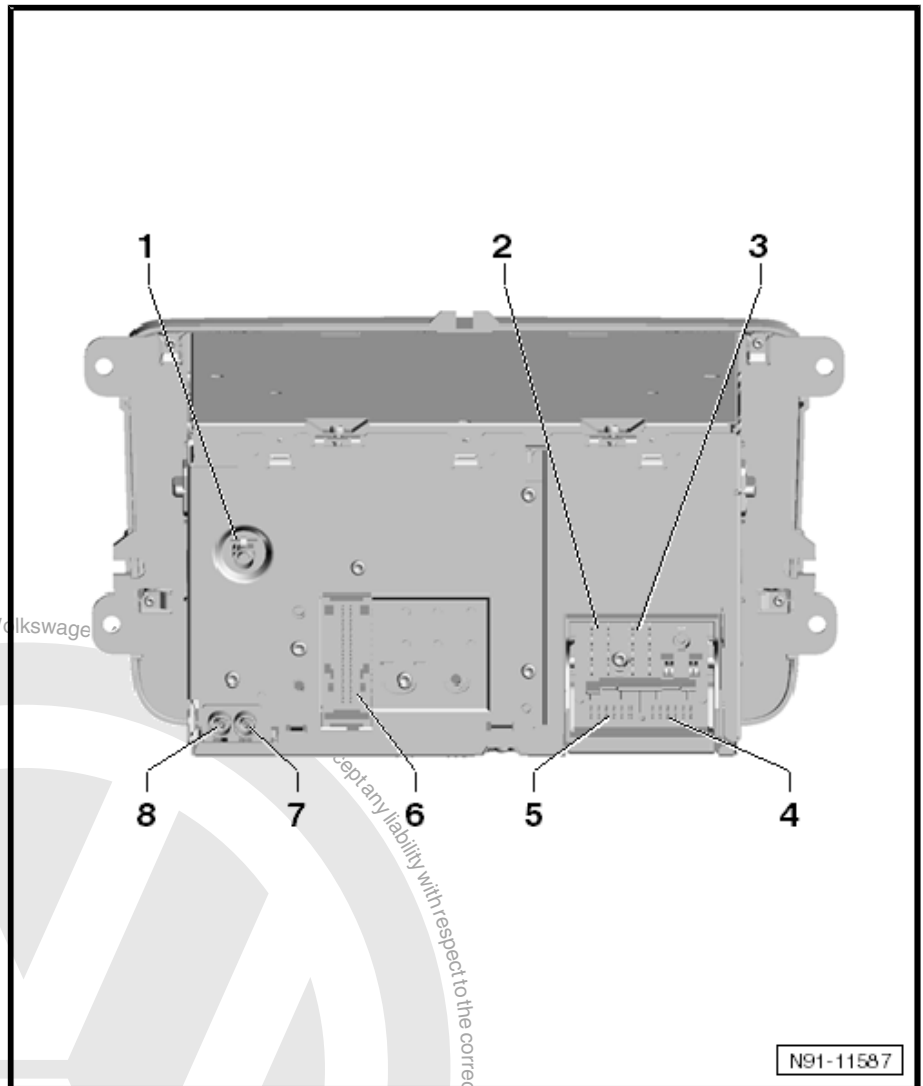
- ☐ Connector assignment ➤ [page 137](#)

### 7 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to ➤ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ➤ ["2.3 Antenna Systems", page 68](#) .

### 8 - Antenna Connection

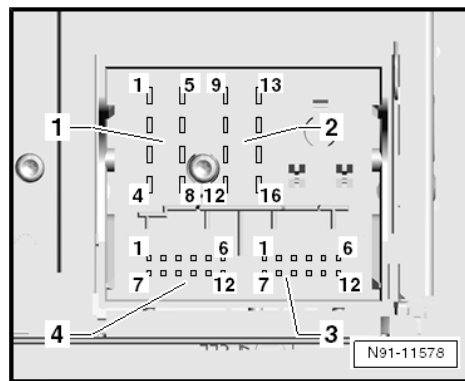
- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to ➤ ["2.2 Antenna Systems", page 65](#) .
- ☐ Antenna systems, wagon. Refer to ➤ ["2.3 Antenna Systems", page 68](#) .





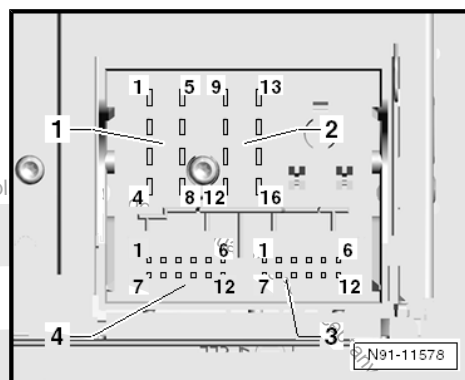
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



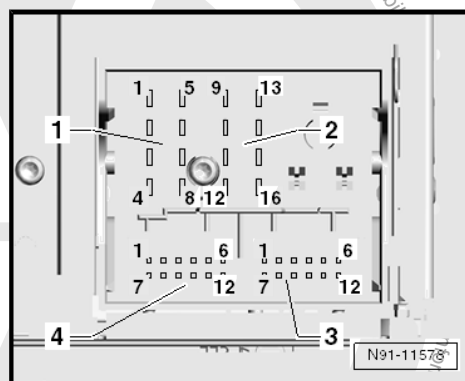
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



### 12-Pin Connector 3, Telephone

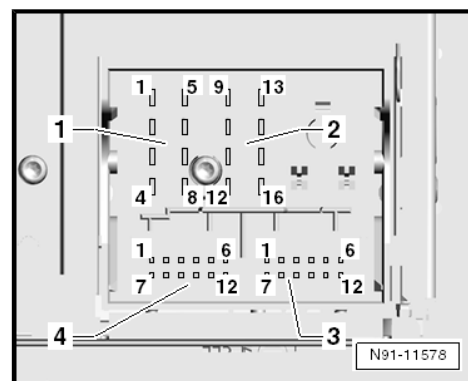
- 1 - Microphone Input (-)
- 2 - Right Audio Output (+)
- 3 - Audio Output Ground
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Left Audio Output (+)
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)





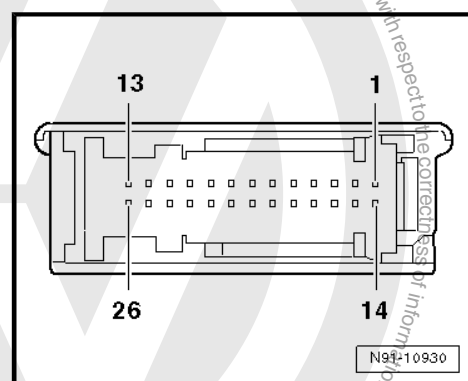
# **12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199- , Multimedia System Control Module -J650-**

- 1 - Left Audio Input External Audio Source Connection -R199- / Multimedia System Control Module -J650-
- 2 - Audio Input Ground External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



# **26-Pin Connector 5, Video and LF Input**

- 4 - Ground Shield
- 5 - Video Output LF Right
- 6 - Video Output Ground
- 7 - Video Output Sync
- 8 - Video Output Green
- 9 - Ground Shield
- 10 - Video Input LF Right
- 11 - Video Input Ground
- 12 - Video Input Sync
- 13 - Video Input Green
- 17 - Video Output LF Ground
- 18 - Video Output LF Left
- 19 - Video Output RGBS (-)
- 20 - Video Output Blue
- 21 - Video Output Red
- 22 - Video Output LF (-)
- 23 - Video Input LF Left
- 24 - Video input RGBS (-)
- 25 - Video Input Blue
- 26 - Video Input Red







## 2.26 RCD 510+

⇒ [“2.26.1 Radio Component Location”, page 138](#)

⇒ [“2.26.2 Connector Assignment”, page 139](#)

### 2.26.1 Radio Component Location

#### 1 - Multifunction Steering Wheel

- ❑ Refer to  
⇒ [“1.11 Multifunction Steering Wheel”, page 10](#).

#### 2 - Radio -R-

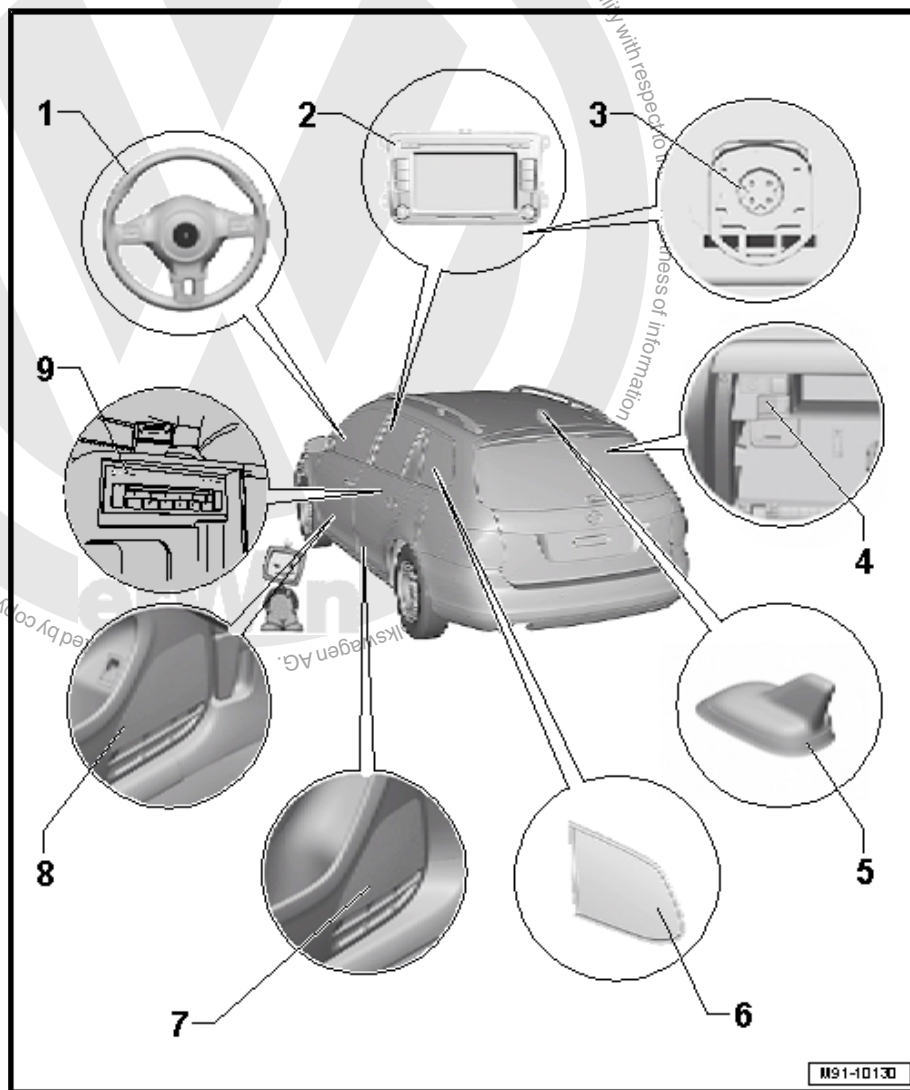
- ❑ Connectors. Refer to  
⇒ [“2.26.2 Connector Assignment”, page 139](#).
- ❑ Transport protection, activating/deactivating. Refer to ⇒ [page 38](#).
- ❑ Removing and installing. Refer to  
⇒ [“5.16.2 RCD 510+”, page 216](#).
- ❑ Radio functions, adapting. Refer to  
⇒ [“4.22 RCD 510+, Adapting”, page 171](#).
- ❑ Electronic anti-theft protection, deactivating. Refer to ⇒ [page 37](#).

#### 3 - USB Connection

- ❑ On the rear of RCD 510 +

#### 4 - Multimedia System Control Module -J650-

- ❑ in the glove compartment
- ❑ Refer to  
⇒ [“1.12 Multimedia System Control Module J650”, page 10](#).



#### 5 - Roof Antenna

- ❑ Antenna systems, wagon. Refer to ⇒ [“2.3 Antenna Systems”, page 68](#).

#### 6 - Antenna -R11-

- ❑ Antenna systems, wagon. Refer to ⇒ [“2.3 Antenna Systems”, page 68](#).

#### 7 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).

#### 8 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ⇒ [“1.17 Speakers”, page 56](#).

#### 9 - CD Changer -R41- / External Audio Source Connection 2 -R231-, USB Port

- ❑ in center console
- ❑ Refer to ⇒ [“1.4 CD Changer R41”, page 4](#).





- ☐ For the USB port, refer to ➤ [“1.8 External Audio Source Connection 2 R231 \(USB Port\)”, page 8](#) .

## 2.26.2 Connector Assignment

### 1 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment  
➤ [page 139](#)

### 2 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment  
➤ [page 140](#)

### 3 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment  
➤ [page 140](#)

### 4 - 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection - R199- , Multimedia System Control Module -J650-

- ☐ Connector assignment  
➤ [page 140](#)

### 5 - USB Connection

- ☐ Connector assignment  
➤ [page 141](#)

### 6 - 26-Pin Connector 5, Video and LF Input

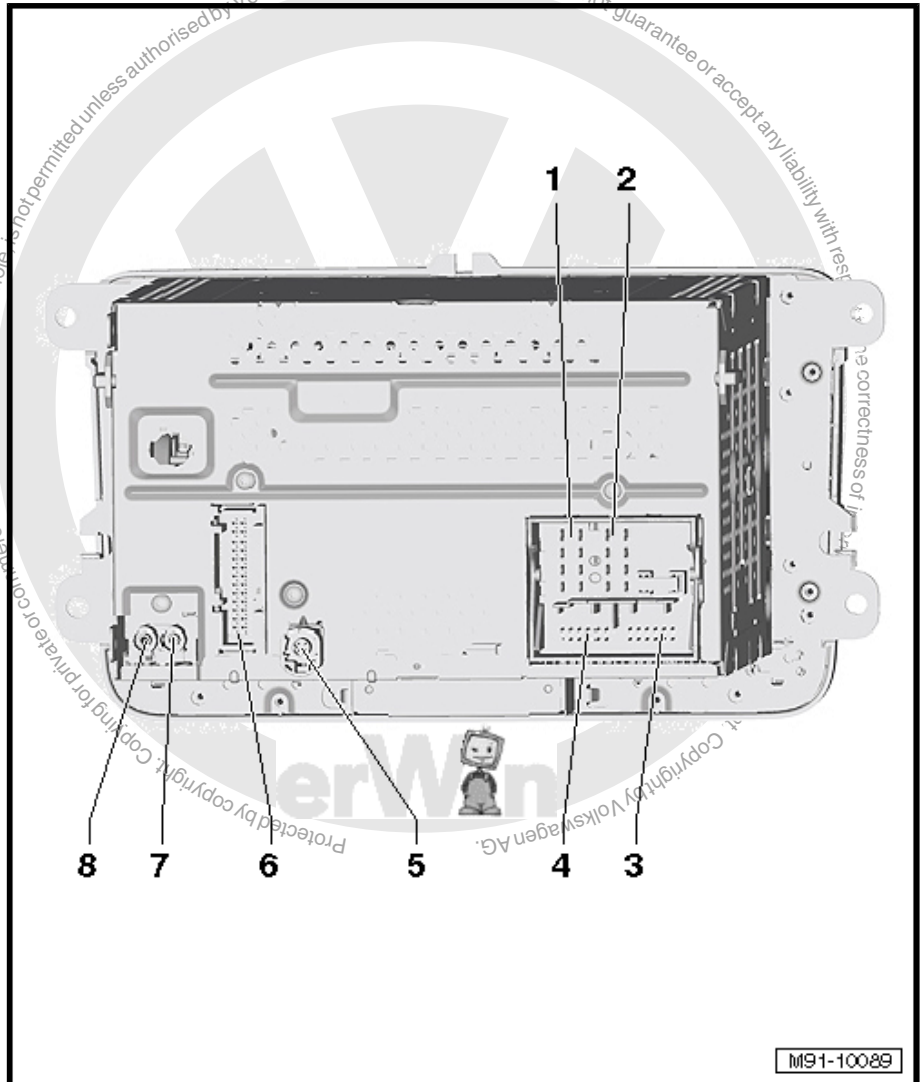
- ☐ Connector assignment  
➤ [page 141](#)

### 7 - Antenna Connection

- ☐ FM2  
☐ Antenna systems, wagon. Refer to  
➤ [“2.3 Antenna Systems”, page 68](#) .

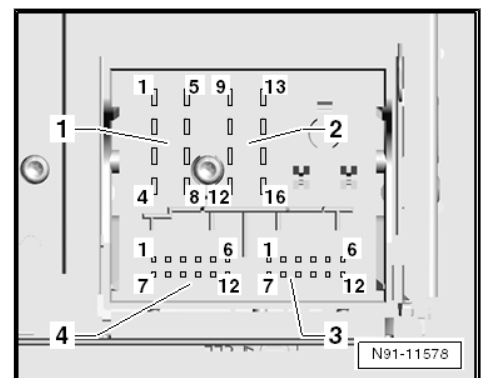
### 8 - Antenna Connection

- ☐ AM/FM  
☐ Antenna systems, wagon. Refer to ➤ [“2.3 Antenna Systems”, page 68](#) .



### 8-Pin Connector 1, Speaker Outputs

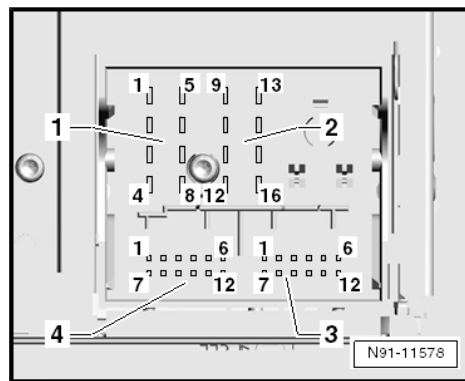
- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)





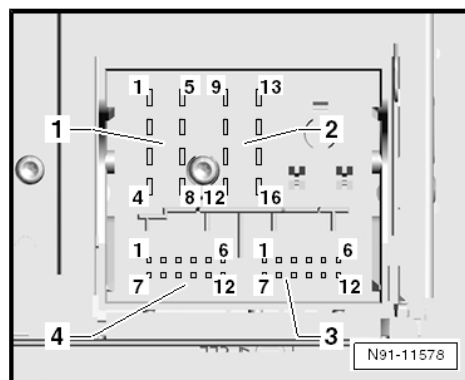
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



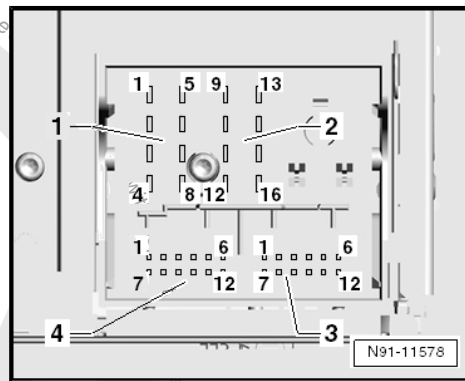
### 12-Pin Connector 3, Telephone

- 1 - Not Assigned
- 2 - Right Audio Output (+)
- 3 - Audio Output Ground
- 4 - Not Assigned
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Not Assigned
- 8 - Left Audio Output (+)
- 9 - Not Assigned
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)



### 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199- , Multimedia System Control Module -J650-

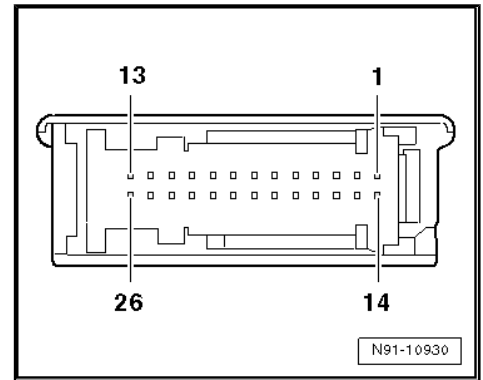
- 1 - Left Audio Input External Audio Source Connection -R199- / Multimedia System Control Module -J650-
- 2 - Audio Input Ground External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-





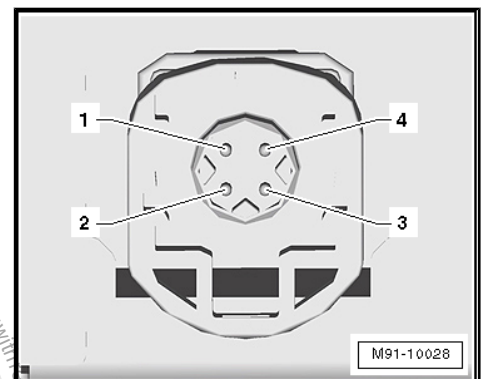
## 26-Pin Connector 5, Video and LF Input

- 5 - Video Output LF Right
- 6 - Video Output Ground
- 7 - Video Output Sync
- 8 - Video Output Green
- 10 - Video Input LF Right
- 11 - Video Input Ground
- 12 - Video Input Sync
- 13 - Video Input Green
- 17 - Video Output LF Ground
- 18 - Video Output LF Left
- 19 - Video Output RGBS (-)
- 20 - Video Output Blue
- 21 - Video Output Red
- 22 - Video Output LF (-)
- 23 - Video Input LF Left
- 24 - Video input RGBS (-)
- 25 - Video Input Blue
- 26 - Video Input Red



## 4-Pin USB Connection

- 1 - Ground
- 2 - D (-)
- 3 - VCC (+5 V)
- 4 - D (+)



## 2.27 RNS 510

### Sedan

⇒ ["2.27.1 Navigation System Component Location", page 141](#)

### Wagon

⇒ ["2.27.2 Navigation System Component Location", page 143](#)

⇒ ["2.27.3 Connector Assignment", page 144](#)

## 2.27.1 Navigation System Component Location



### 1 - Radio/Navigation Display Unit Control Module -J503-

- ☐ Connector assignment  
⇒ ["2.27.3 Connector Assignment", page 144](#)
- ☐ Removing and installing. Refer to  
⇒ ["5.16.8 RNS 510", page 228](#).
- ☐ Functions, adapting. Refer to  
⇒ ["4.23 RNS 510, Adapting", page 171](#).
- ☐ Electronic anti-theft protection, deactivating. Refer to ⇒ [page 55](#).

### 2 - CD Changer -R41-

- ☐ in center console
- ☐ Refer to  
⇒ ["1.4 CD Changer R41", page 4](#).

### 3 - Multimedia System Control Module -J650-

- ☐ in center console
- ☐ Refer to  
⇒ ["1.12 Multimedia System Control Module J650", page 10](#).

### 4 - External Audio Source Connection -R199-

- ☐ in center console
- ☐ Refer to  
⇒ ["1.7 External Audio Source Connection R199", page 7](#).

### 5 - Amplifier -R12-

- ☐ Under the left front seat
- ☐ Refer to ⇒ ["1.1 Amplifier R12", page 2](#).

### 6 - Antenna -R11- / Radio Antenna 2 -R93- / Navigation System Antenna -R50-

- ☐ Antenna systems, Sedan. Refer to ⇒ ["2.2 Antenna Systems", page 65](#).

### 7 - Rear Treble Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#).

### 8 - Rear Bass Speaker

- ☐ Inside the left and right rear doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#).

### 9 - Front Bass Speaker

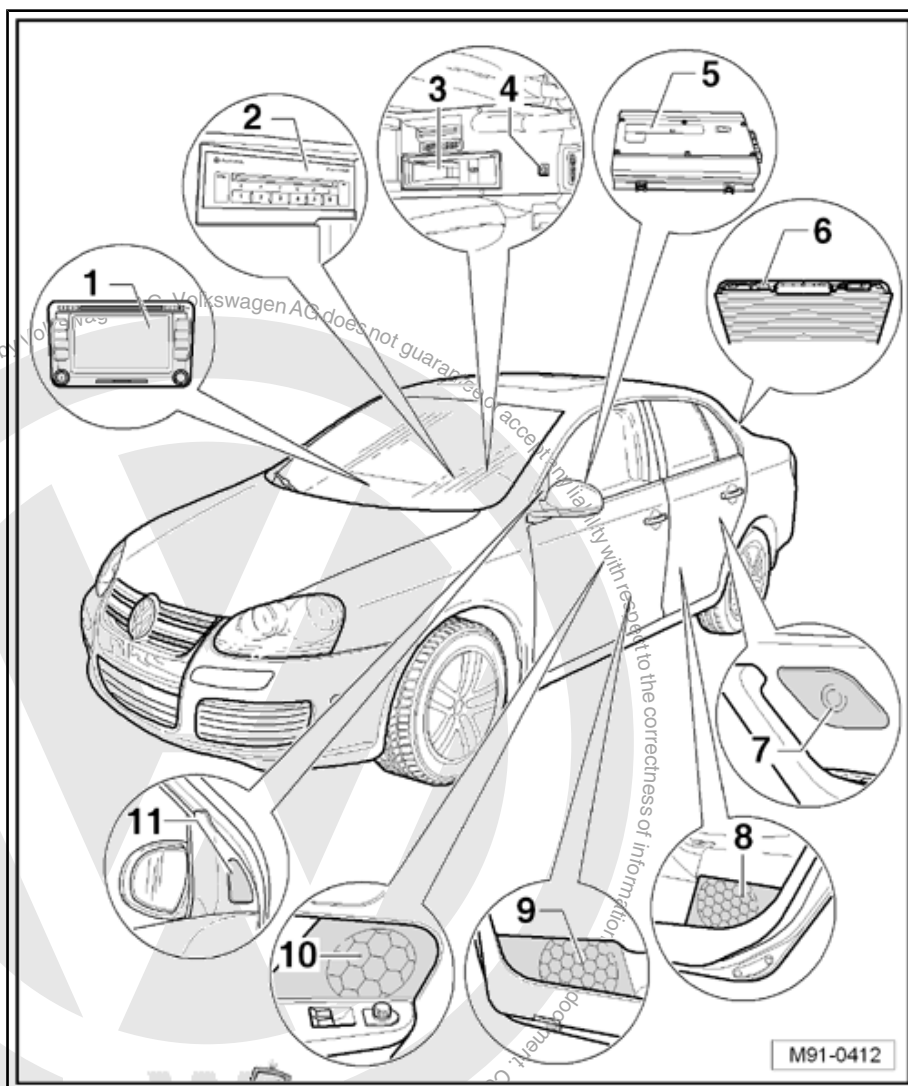
- ☐ Inside the left and right front doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#).

### 10 - Front Midrange Speaker

- ☐ Inside the left and right trim panels on the front doors
- ☐ Speaker systems. Refer to ⇒ ["1.17 Speakers", page 56](#).

### 11 - Front Treble Speaker

- ☐ Inside the left and right mirror triangle/A-pillar





- ❑ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

## 2.27.2 Navigation System Component Location

### 1 - Multifunction Steering Wheel

- ❑ Refer to  
➤ [“1.11 Multifunction Steering Wheel”, page 10](#) .

### 2 - Radio/Navigation Display Unit Control Module -J503-

- ❑ Connector assignment  
➤ [“2.27.3 Connector Assignment”, page 144](#) .
- ❑ Removing and installing. Refer to  
➤ [“5.16.8 RNS 510”, page 228](#) .
- ❑ Functions, adapting. Refer to  
➤ [“4.23 RNS 510, Adapting”, page 171](#) .
- ❑ Electronic anti-theft protection, deactivating. Refer to ➤ , [page 55](#) .

### 3 - Multimedia System Control Module -J650-

- ❑ In the glove compartment
- ❑ Refer to  
➤ [“1.12 Multimedia System Control Module J650”, page 10](#) .

### 4 - GPS Antenna -R50-

- ❑ Roof Antenna
- ❑ Antenna systems, wagon. Refer to  
➤ [“2.3 Antenna Systems”, page 68](#) .

### 5 - Antenna -R11- / Radio Antenna 2 -R93-

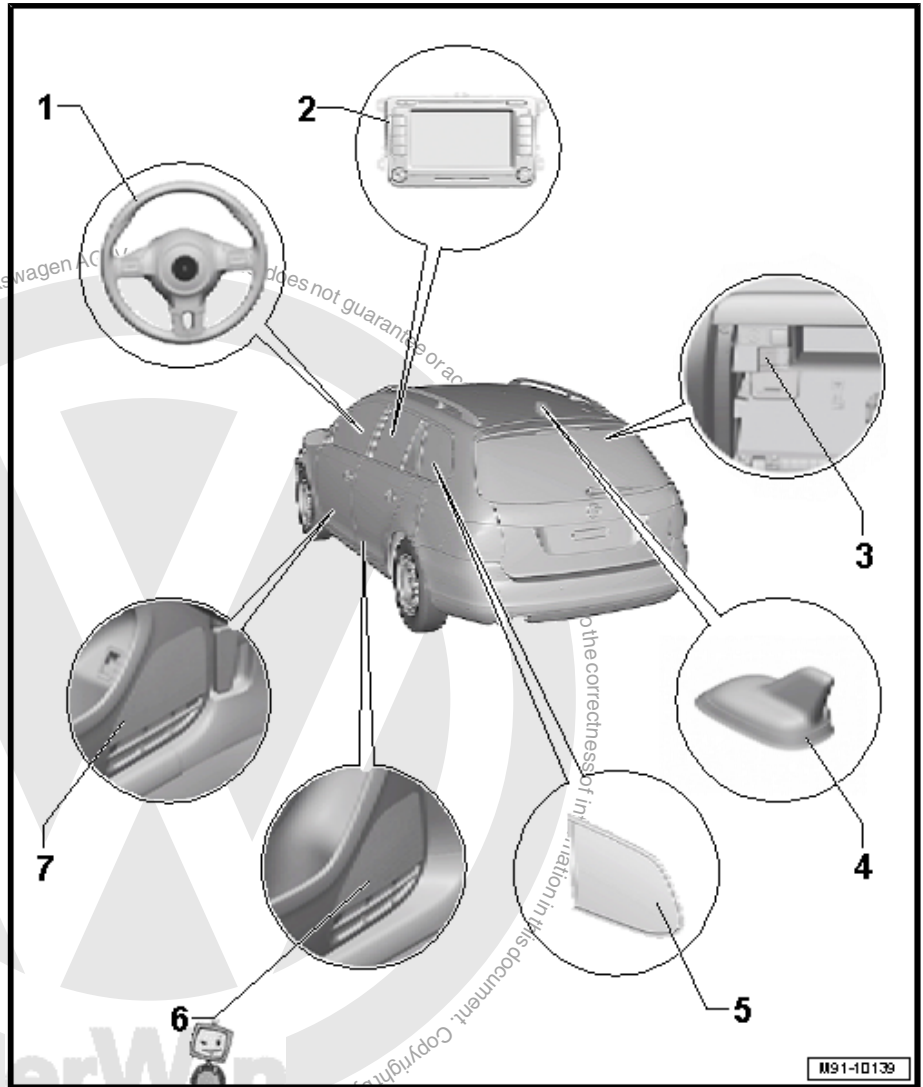
- ❑ Antenna systems, wagon. Refer to ➤ [“2.3 Antenna Systems”, page 68](#) .

### 6 - Rear Speaker

- ❑ Inside the left and right rear doors
- ❑ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .

### 7 - Front Speaker

- ❑ Inside the left and right front doors
- ❑ Speaker systems. Refer to ➤ [“1.17 Speakers”, page 56](#) .



M91-ID139



## 2.27.3 Connector Assignment

### 1 - Navigation Connection, Japan

- ☐ Not Assigned

### 2 - Antenna Connection

- ☐ DAB
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#).

### 3 - 8-Pin Connector 1, Speaker Outputs

- ☐ Connector assignment [⇒ page 145](#)

### 4 - 8-Pin Connector 2, CAN Bus, Voltage Supply

- ☐ Connector assignment [⇒ page 145](#)

### 5 - 12-Pin Connector 3, Telephone

- ☐ Connector assignment [⇒ page 145](#)

### 6 - 12-Pin Connector 4, CD Changer -R41-, External Audio Source Connection - R199-, Multimedia System Control Module -J650-

- ☐ Connector assignment [⇒ page 146](#)

### 7 - 26-Pin Connector 5, Video and LF Input

- ☐ Connector assignment [⇒ page 146](#)

### 8 - Antenna Connection GPS Antenna -R50-

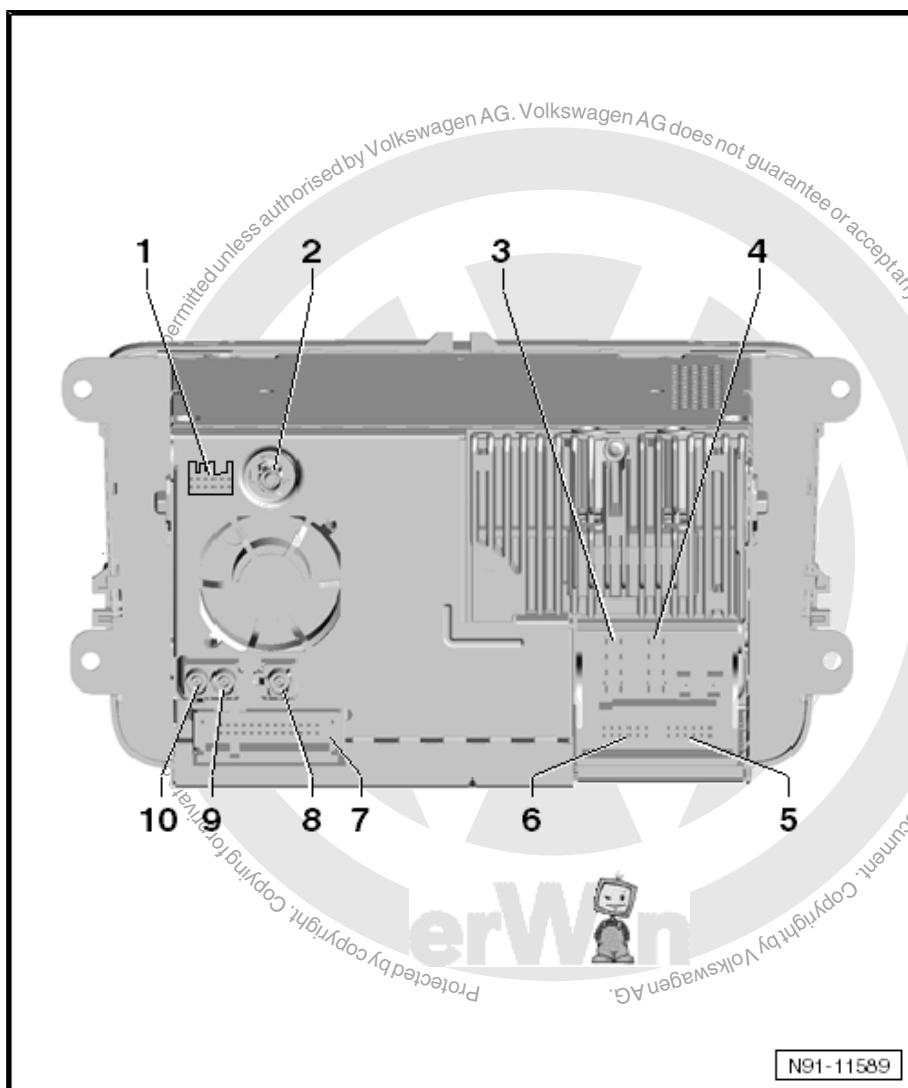
- ☐ GPS
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#).

### 9 - Antenna Connection

- ☐ FM2
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#).

### 10 - Antenna Connection

- ☐ AM/FM
- ☐ Antenna systems, Sedan. Refer to [⇒ "2.2 Antenna Systems", page 65](#).
- ☐ Antenna systems, wagon. Refer to [⇒ "2.3 Antenna Systems", page 68](#).

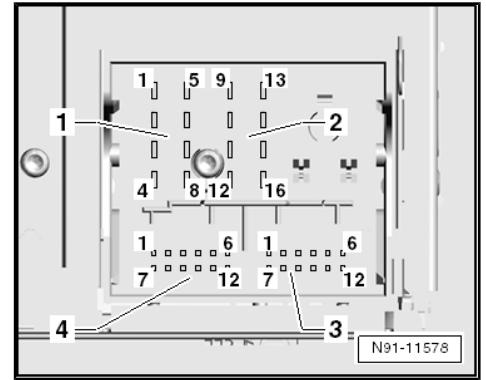






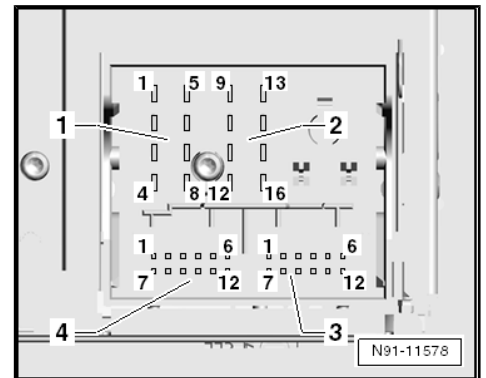
### 8-Pin Connector 1, Speaker Outputs

- 1 - Right Rear Speaker (+)
- 2 - Right Front Speaker (-)
- 3 - Left Front Speaker (+)
- 4 - Left Rear Speaker (+)
- 5 - Right Rear Speaker (-)
- 6 - Right Front Speaker (-)
- 7 - Left Front Speaker (+)
- 8 - Left Rear Speaker (-)



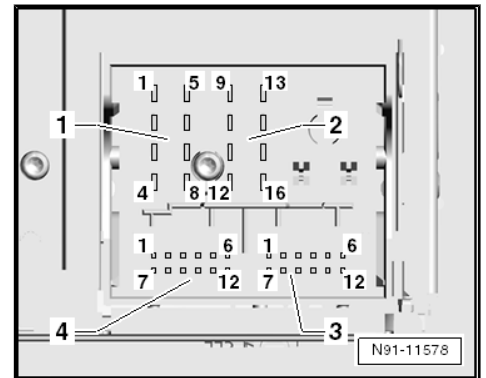
### 8-Pin Connector 2, CAN Bus, Voltage Supply

- 9 - CAN Bus High
- 10 - Can Bus Low
- 12 - Terminal 31
- 15 - Terminal 30
- 16 - Continuous Positive, connected with PIN 15, anti-theft warning system



### 12-Pin Connector 3, Telephone

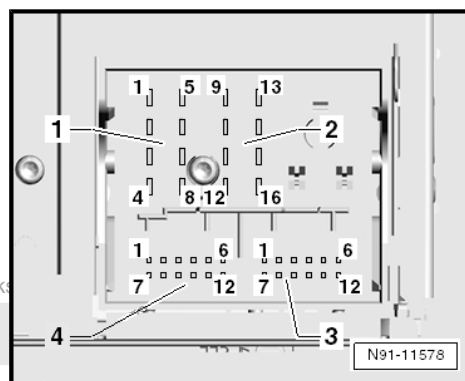
- 1 - Microphone Input (-)
- 2 - Not Assigned
- 3 - Not Assigned
- 4 - Microphone Output (-)
- 5 - Telephone, Low Frequency Signal Input Left (-)
- 6 - Telephone, Low Frequency Signal Input Right (-)
- 7 - Microphone Input (+)
- 8 - Not Assigned
- 9 - Microphone Output (+)
- 10 - Telephone, Mute
- 11 - Telephone, Low Frequency Signal Input Left (+)
- 12 - Telephone, Low Frequency Signal Input Right (+)





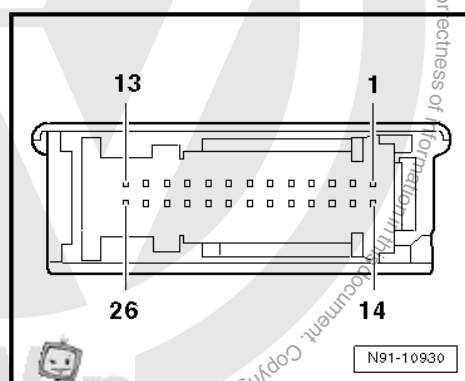
### 12-Pin Connector 4, CD Changer -R41- , External Audio Source Connection -R199- , Multimedia System Control Module -J650-

- 1 - Left Audio Input External Audio Source Connection -R199- / Multimedia System Control Module -J650-
- 2 - Audio Input Ground External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 3 - Audio Ground from the CD Changer -R41-
- 4 - Terminal 30 to the CD Changer -R41-
- 5 - Not Assigned
- 6 - CD data out to the CD Changer -R41-
- 7 - Right Audio Input External Audio Source Connection - R199- / Multimedia System Control Module -J650-
- 8 - Left Audio from the CD Changer -R41-
- 9 - Right Audio from the CD Changer -R41-
- 10 - Control Signal to the CD Changer -R41-
- 11 - CD data in from CD Changer -R41-
- 12 - CD CLK from CD Changer -R41-



### 26-Pin Connector 5, Video and LF Input

- 4 - Ground Shield
- 5 - Video Output LF Right
- 6 - Video Output Ground
- 7 - Video Output Sync
- 8 - Video Output Green
- 9 - Ground Shield
- 10 - Video Input LF Right
- 11 - Video Input Ground
- 12 - Video Input Sync
- 13 - Video Input Green
- 17 - Video Output LF Ground
- 18 - Video Output LF Left
- 19 - Video Output RGBS (-)
- 20 - Video Output Blue
- 21 - Video Output Red
- 22 - Video Output LF (-)
- 23 - Video Input LF Left
- 24 - Video input RGBS (-)
- 25 - Video Input Blue
- 26 - Video Input Red







## 2.28 Satellite Radio -R146- Connectors

### Satellite Radio -R146-

A - 8-pin connector

B - 8-pin connector

C - TER connection (brown) from the Satellite Antenna -R170- ,  
through MY 2006

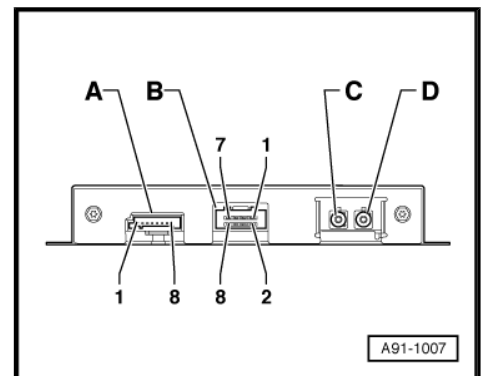
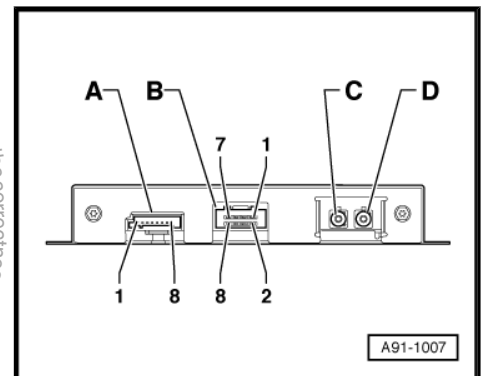
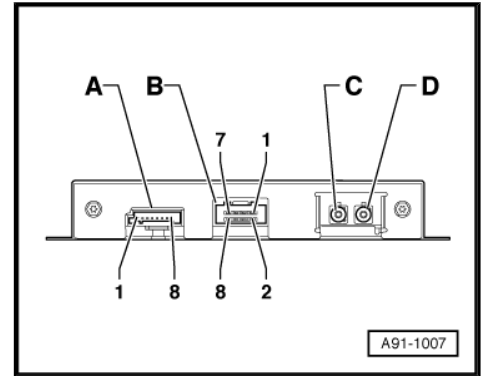
D - SAT connection (green) from the Satellite Antenna -R170-

#### Connector A, 8-pin

- 1 - CAN Bus, High
- 2 - CAN Bus, Low
- 3 - Not used
- 4 - Not used
- 5 - Signal ground to radio
- 6 - Left signal to radio
- 7 - Right signal to radio
- 8 - Not used

#### Connector B, 8-pin

- 1 - Terminal 31
- 2 - Terminal 30



## 2.29 Speaker Systems Overviews

⇒ ["2.29.1 4 - Speaker System", page 147](#)

⇒ ["2.29.2 6 - Speaker System", page 149](#)

⇒ ["2.29.3 8 - Speaker System", page 150](#)

⇒ ["2.29.4 10 - Speaker System", page 151](#)

⇒ ["2.29.5 Digital Sound Processor \(DSP\) Speaker System", page 152](#)

⇒ ["2.29.6 Speaker System Component Location Overview", page 153](#)

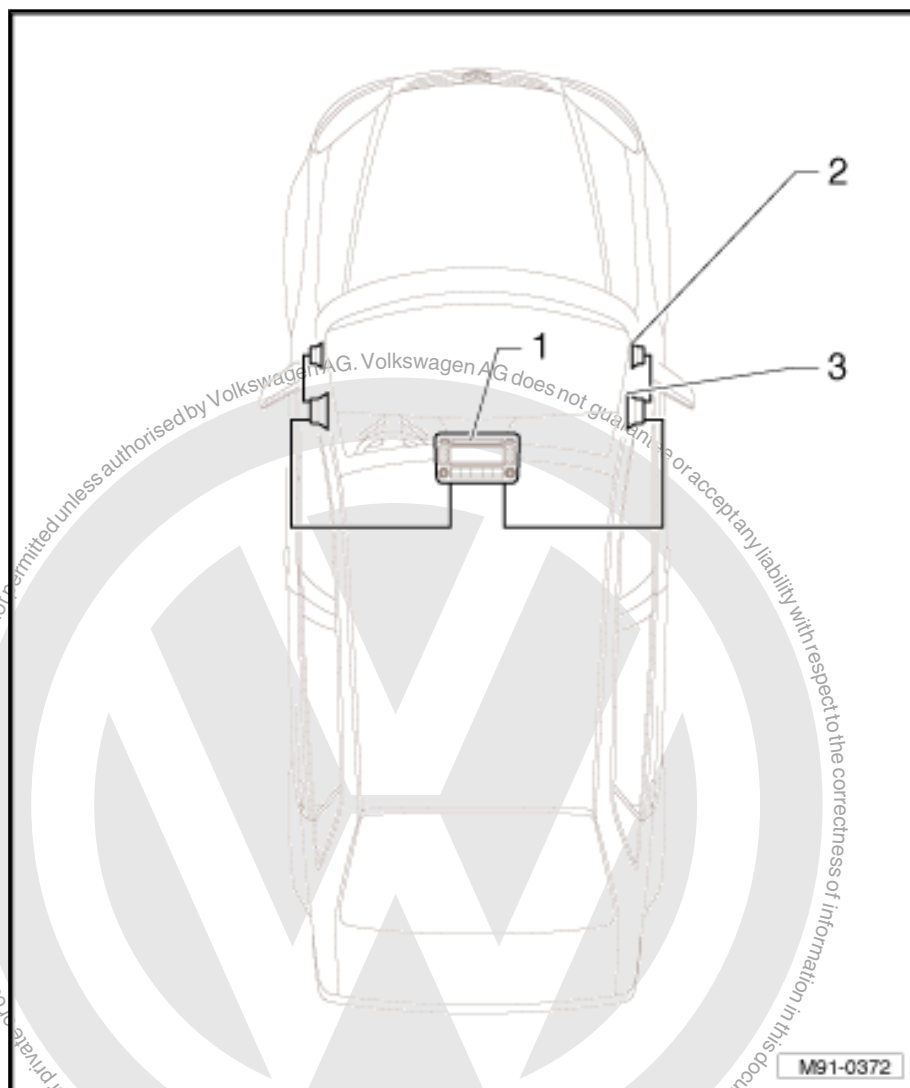
### 2.29.1 4 - Speaker System



1 - Radio -R-

2 - Right Front Treble Speaker  
-R22- / Left Front Treble  
Speaker -R20- inside the Front  
Doors/A-Pillars

3 - Right Front Bass Speaker -  
R23- / Left Front Bass Speaker  
-R21- inside the Front Doors





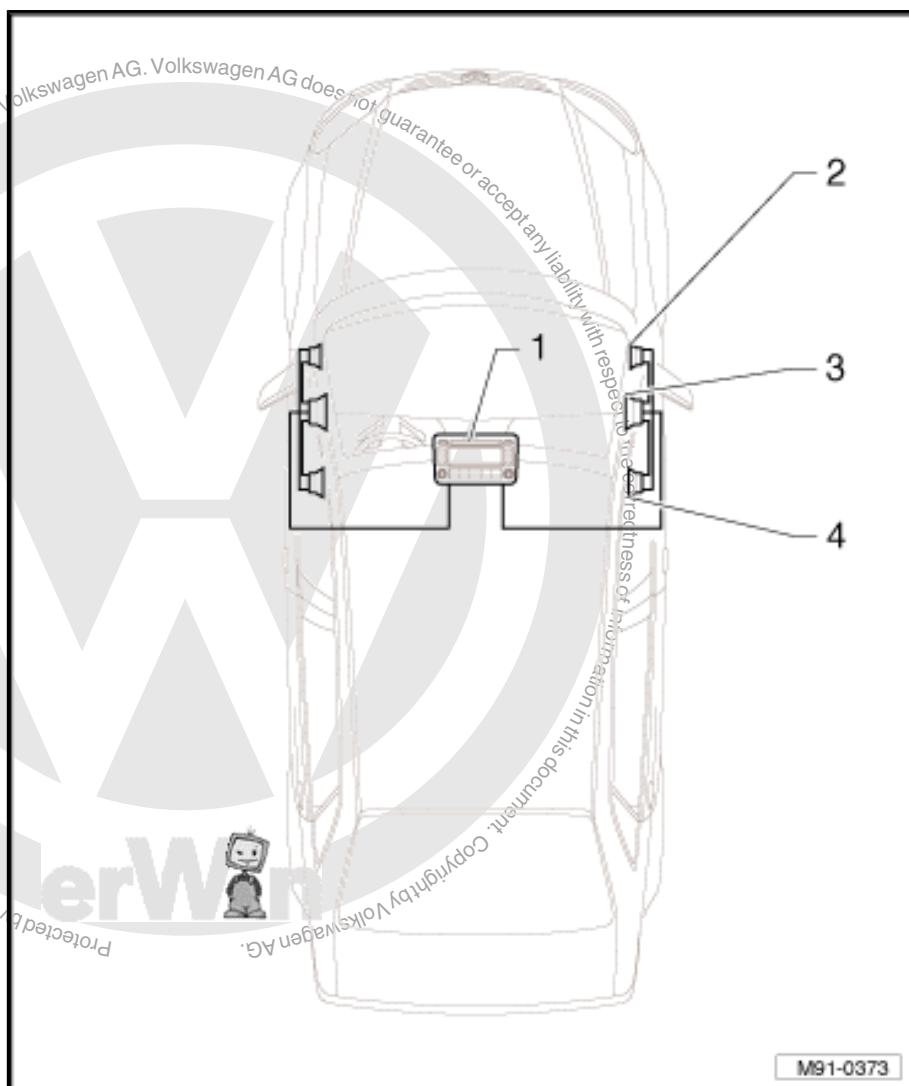
## 2.29.2 6 - Speaker System

1 - Radio -R-

2 - Right Front Treble Speaker  
-R22- / Left Front Treble  
Speaker -R20- inside the Front  
Doors/A-Pillars

3 - Right Front Midrange  
Speaker -R104- / Left Front  
Midrange Speaker -R103- in-  
side the Front Doors

4 - Right Front Bass Speaker -  
R23- / Left Front Bass Speaker  
-R21- inside the Front Doors





## 2.29.3 8 - Speaker System

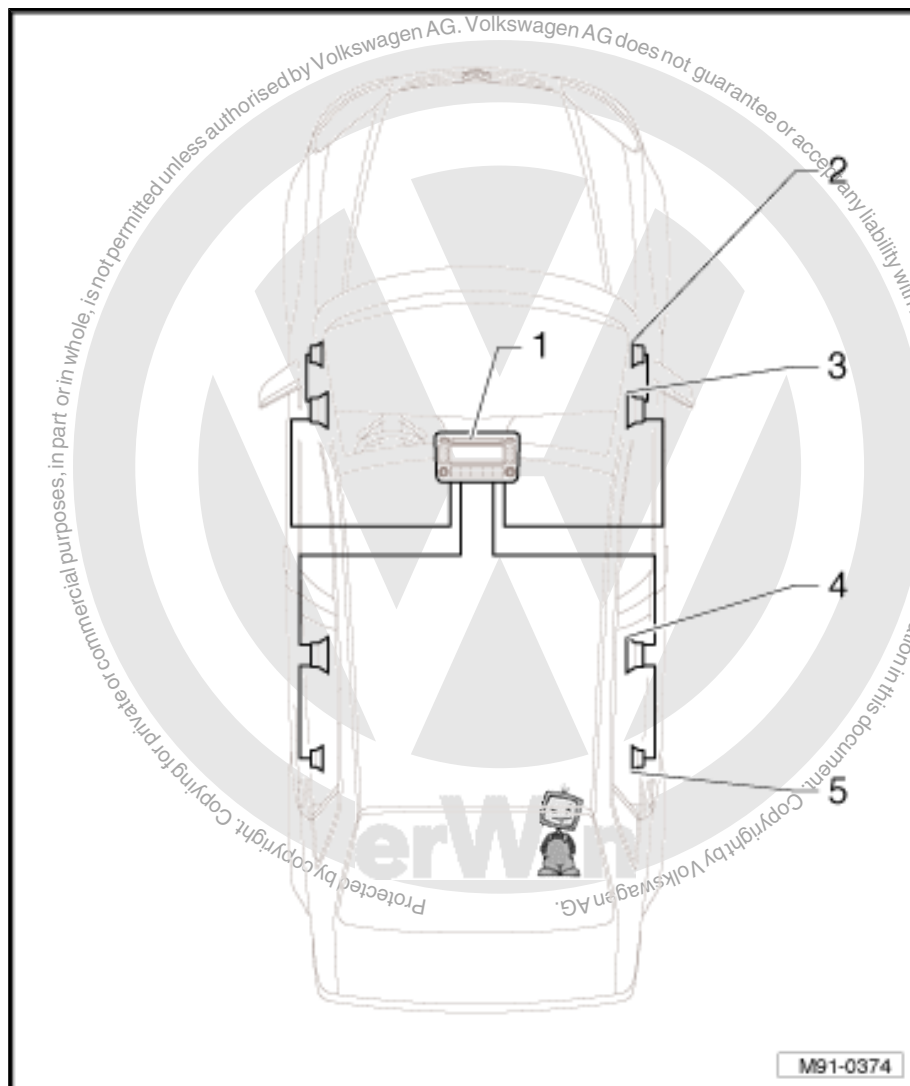
1 - Radio -R-

2 - Right Front Treble Speaker -R22- / Left Front Treble Speaker -R20- inside the Front Doors/A-Pillars

3 - Right Front Bass Speaker - R23- / Left Front Bass Speaker -R21- inside the Front Doors

4 - Right Rear Treble Speaker -R16- / Left Rear Treble Speaker -R14- inside the Rear Doors

5 - Right Rear Bass Speaker - R17- / Left Rear Bass Speaker -R15- inside the Rear Doors





## 2.29.4 10 - Speaker System

1 - Radio -R-

2 - Right Front Treble Speaker -R22- / Left Front Treble Speaker -R20- inside the Front Doors/A-Pillars

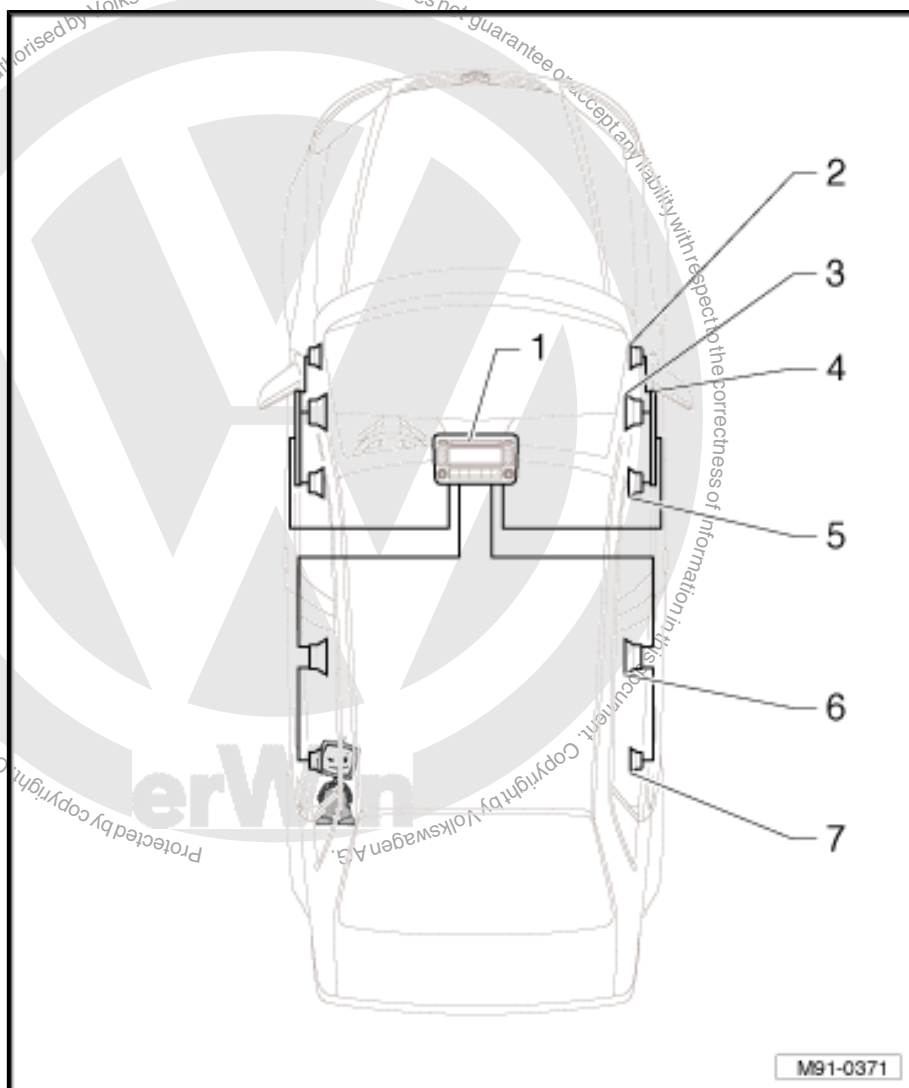
3 - Right Front Midrange Speaker -R104- / Left Front Midrange Speaker -R103- inside the Front Doors

4 - Right Frequency Crossover -R19- / Left Frequency Crossover -R18- inside the Front Doors

5 - Right Front Bass Speaker -R23- / Left Front Bass Speaker -R21- inside the Front Doors

6 - Right Rear Treble Speaker -R16- / Left Rear Treble Speaker -R14- inside the Rear Doors

7 - Right Rear Bass Speaker -R17- / Left Rear Bass Speaker -R15- inside the Rear Doors



M91-0371



## 2.29.5 Digital Sound Processor (DSP) Speaker System

1 - Radio -R-

2 - Right Front Treble Speaker -R22- / Left Front Treble Speaker -R20- inside the Front Doors/A-Pillars

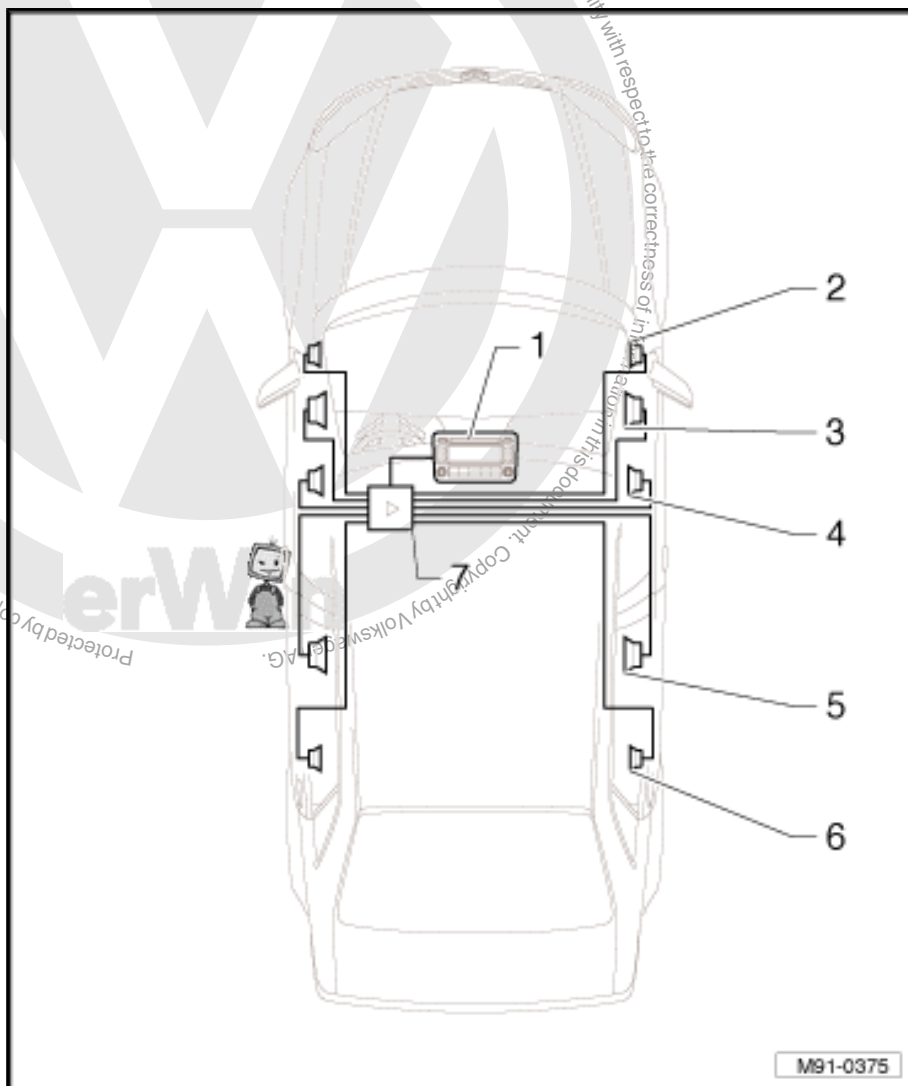
3 - Right Front Midrange Speaker -R104- / Left Front Midrange Speaker -R103- inside the Front Doors

4 - Right Front Bass Speaker - R23- / Left Front Bass Speaker -R21- inside the Front Doors

5 - Right Rear Treble Speaker -R16- / Left Rear Treble Speaker -R14- inside the Rear Doors

6 - Right Rear Bass Speaker - R17- / Left Rear Bass Speaker -R15- inside the Rear Doors

7 - Amplifier -R12- under the Left Front Seat





## 2.29.6 Speaker System Component Location Overview

### 1 - Right Front Bass Speaker - R23- / Left Front Bass Speaker -R21- inside the Front Doors

- ❑ Removing and installing. Refer to  
⇒ ["5.19.1 Bass, Front", page 232](#).

### 2 - Right front treble speaker - R22- / left front treble speaker -R20- inside the front doors.

- ❑ Removing and installing. Refer to  
⇒ ["5.19.4 Treble, Front R20 / R22", page 234](#).

### 3 - Right Front Midrange Speaker -R104- / Left Front Midrange Speaker -R103- inside the Front Doors

- ❑ Removing and installing. Refer to  
⇒ ["5.19.3 Mid-Range, Front", page 233](#).

### 4 - Screw

- ❑ Quantity: 4
- ❑ 1.5 Nm

### 5 - Right Rear Treble Speaker -R16- / Left Rear Treble Speaker -R14- inside the Rear Doors

- ❑ Removing and installing. Refer to  
⇒ ["5.19.5 Treble Speaker, Rear", page 235](#).

### 6 - Right Rear Bass Speaker - R17- / Left Rear Bass Speaker -R15- inside the Rear Doors

- ❑ Removing and installing. Refer to ⇒ ["5.19.2 Bass, Rear", page 232](#).

### 7 - Amplifier -R12- under the Left Front Seat

- ❑ Connector assignment ⇒ ["2.1 Amplifier R12 Connectors", page 61](#)
- ❑ Removing and installing. Refer to ⇒ ["5.1 Amplifier R12", page 173](#).

### 8 - Nut

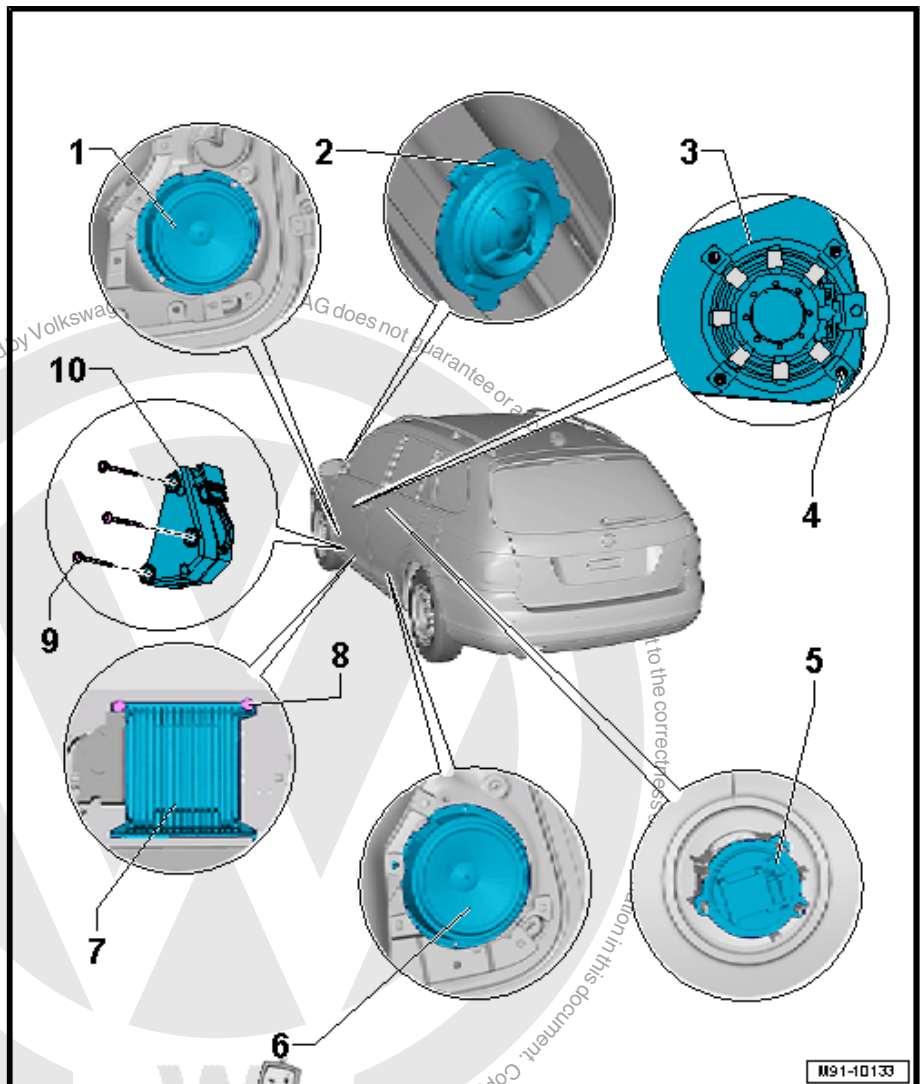
- ❑ Quantity: 2
- ❑ 6 Nm

### 9 - Screw

- ❑ Quantity: 3
- ❑ 1.5 Nm

### 10 - Right Frequency Crossover -R19- / Left Frequency Crossover -R18- inside the Front Doors

- ❑ Removing and installing. Refer to ⇒ ["5.19.6 Frequency Crossovers", page 235](#).



M91-10133





## 2.30 Telephone System Overviews

⇒ [“2.30.1 Telephone System Overview”, page 154](#)

⇒ [“2.30.2 Telephone Transceiver R36 Connectors, Through 06.06”, page 156](#)

⇒ [“2.30.3 Telephone Transceiver R36 Connectors, UHV”, page 157](#)

⇒ [“2.30.4 Cell Phone Operating Electronics Control Module J412 Connectors, UMI”, page 158](#)

**Sedan**

⇒ [“2.30.5 Telephone System Component Location”, page 160](#)

**Wagon**

⇒ [“2.30.6 Telephone System Component Location”, page 161](#)

### 2.30.1 Telephone System Overview

Telephone Overview, through MY 2008

#### 1 - Telephone Antenna -R65-

- ☐ at the top of the rear window on the left side (Sedan)
- ☐ Roof antenna (Wagon)

#### 2 - Telephone Baseplate - R126-

- ☐ On the right of the instrument panel

#### 3 - Telephone Transceiver - R36-

- ☐ Under the right front seat

#### 4 - Telephone Microphone - R38-

- ☐ In the Front Interior Lamp -W1-

#### 5 - Radio/RNS

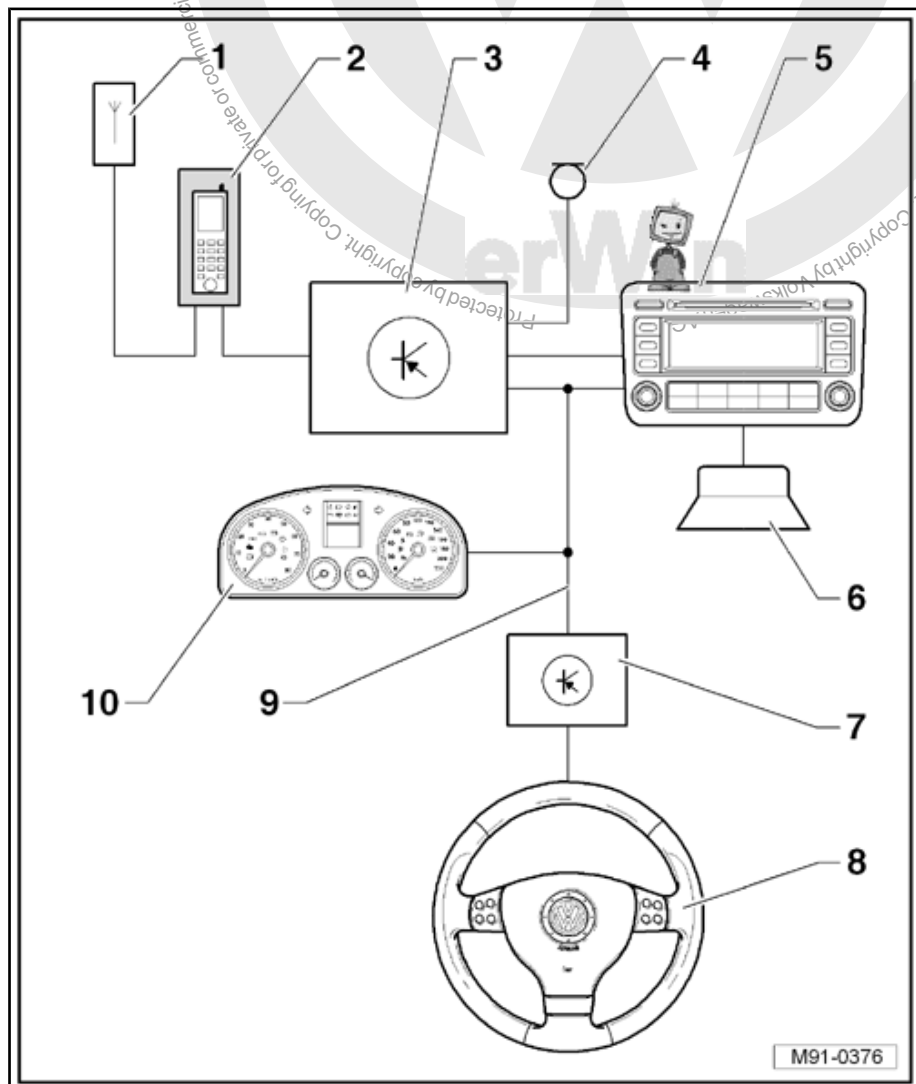
#### 6 - Speaker Systems

#### 7 - Steering Column Electronics Control Module -J527-

#### 8 - Multifunction Steering Wheel

#### 9 - CAN Bus

#### 10 - Instrument Cluster



Telephone Overview, from MY 2009, UHV Low/UHV Premium Light





**1 - Instrument Cluster**

**2 - Multifunction Steering Wheel**

**3 - Steering Column Electronics Control Module -J527-**

**4 - Telephone Antenna -R65-**

- ☐ at the top of the rear window on the left side (Sedan)
- ☐ Roof antenna (Wagon)

**5 - Cellular Telephone Preparation Control Head -E508-**

- ☐ In the Front Interior Lamp -W1-

**6 - Telephone Transceiver - R36-**

- ☐ Under the right front seat

**7 - Telephone Baseplate - R126-**

- ☐ On the right of the instrument panel

**8 - Cellular Telephone -R54-**

- ☐ Not provided with the vehicle
- ☐ Refer to the Owner's Manual

**9 - Headset**

- ☐ Not provided with the vehicle
- ☐ Refer to the Owner's Manual

**10 - Notebook**

- ☐ Not provided with the vehicle
- ☐ Refer to the Owner's Manual

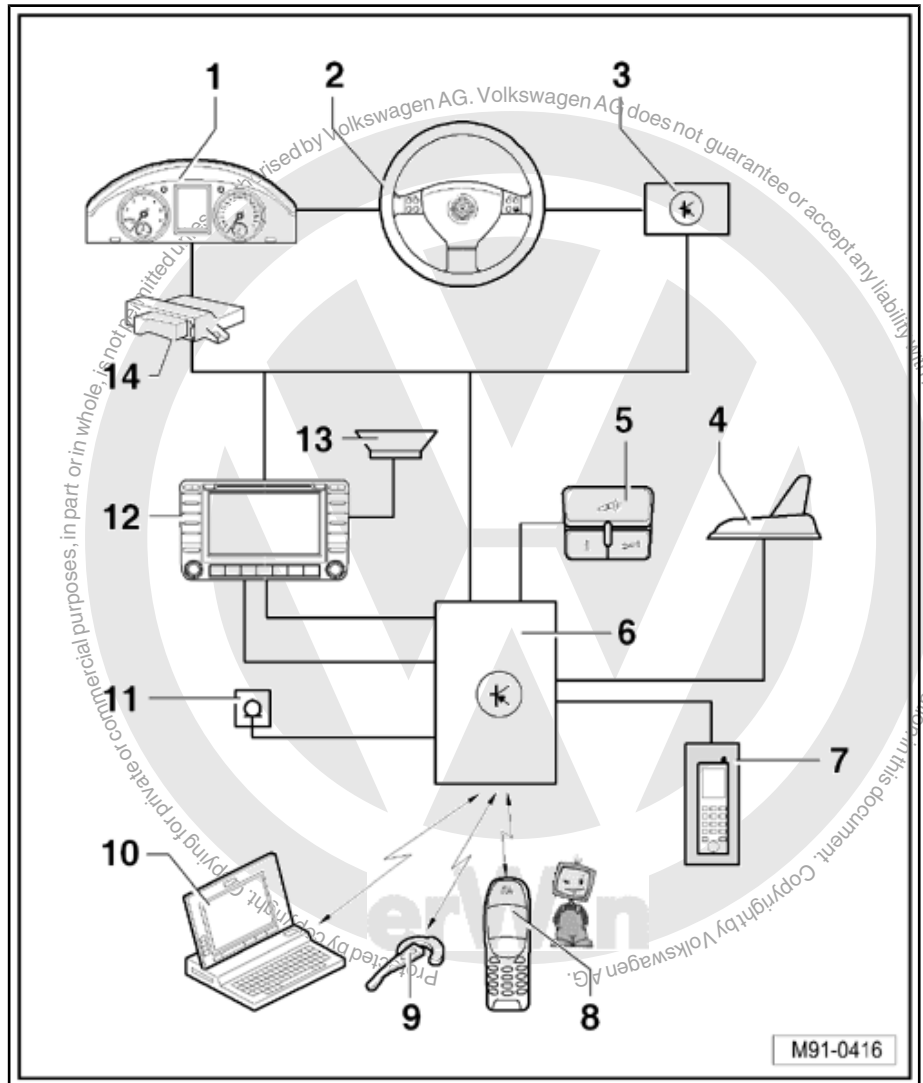
**11 - Telephone Microphone -R38-**

- ☐ In the Front Interior Lamp -W1-

**12 - Radio/RNS**

**13 - Speaker Systems**

**14 - Data Bus On Board Diagnostic Interface -J533-**



**Telephone Overview, UMI**

The UHV High and the MDI are housed together near the UMI, Universal Media Interface ( Cell Phone Operating Electronics Control Module -J412- ). The Cellular Telephone -R54- is connected via Bluetooth.

The functions of the UHV High and MDI are combined in one device ( Cell Phone Operating Electronics Control Module -J412- ).



## 1 - Speaker System

## 2 - Radio/Navigation Display Unit Control Module -J503-

## 3 - Multifunction Steering Wheel

## 4 - CAN Bus

## 5 - Telephone Microphone - R38-

- ☐ In the Front Interior Lamp -W1-

## 6 - Adapter Wire

- ☐ One for each device being connected

## 7 - Cellular Telephone -R54-

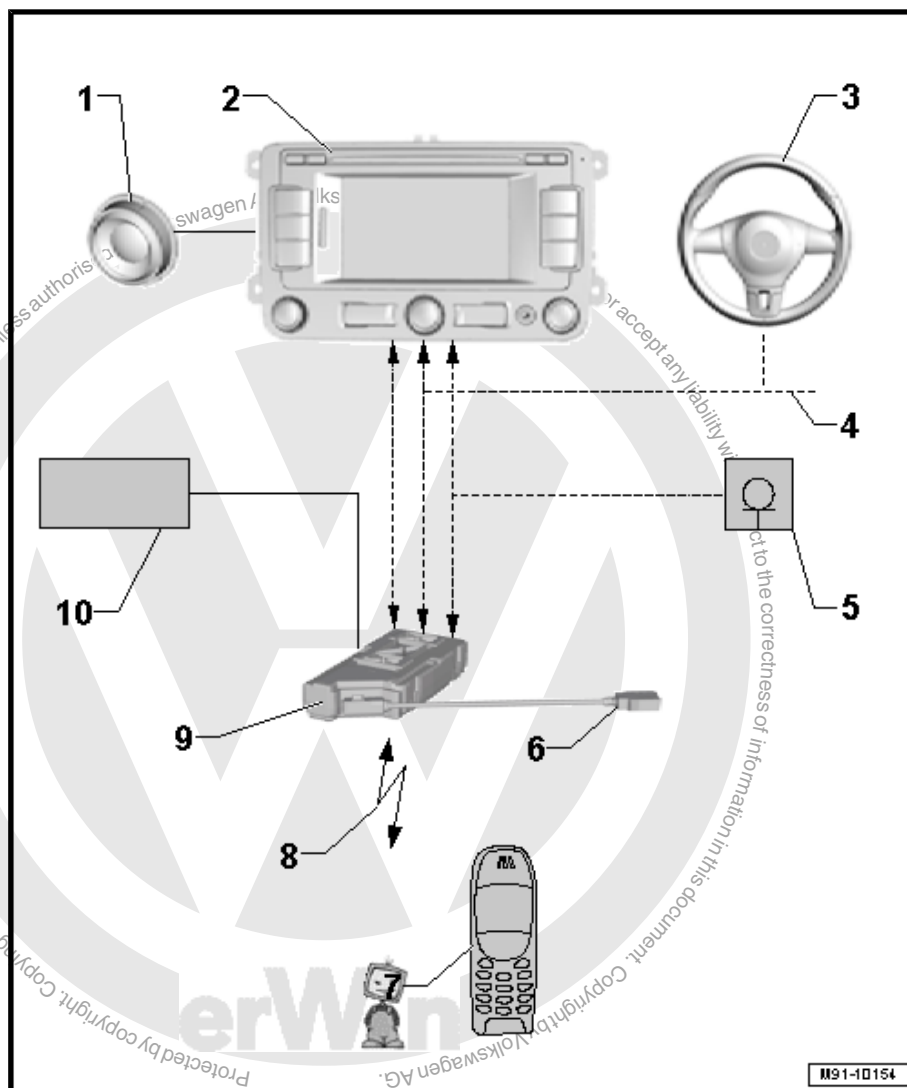
- ☐ Not provided with the vehicle
- ☐ Refer to the Owner's Manual

## 8 - Bluetooth connection

## 9 - Cell Phone Operating Electronics Control Module -J412-, UMI

- ☐ Inside the center console/glove compartment
- ☐ For removal and installation, refer to ["5.13 Multimedia System Control Module J650", page 193](#).

## 10 - 54-Pin Connector



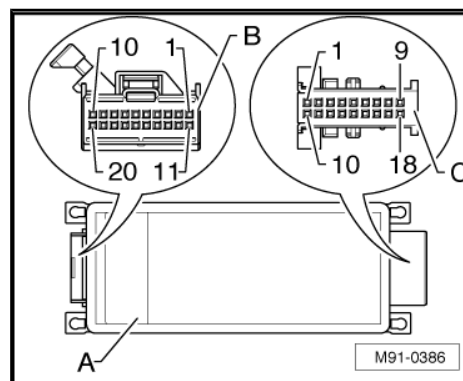
## 2.30.2 Telephone Transceiver -R36- Connectors, Through 06.06

### Telephone Transceiver -R36-

A - Telephone Transceiver -R36-

B - 20-Pin Connector, Red, to the Telephone Baseplate -R126-

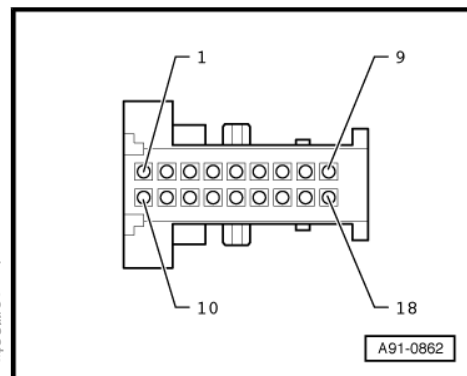
C - 18-Pin Connector, Black





### C - 18-pin connector

- 1 - Terminal 31
- 4 - Telephone, mute to radio
- 7 - LF (-) to radio
- 8 - CAN Bus, Low
- 9 - Telephone microphone -R38- (-):
- 10 - Terminal 15
- 11 - Terminal 30
- 12 - Terminal 58d
- 16 - LF (+) to radio
- 17 - CAN Bus, High
- 18 - Telephone microphone -R38- (+):

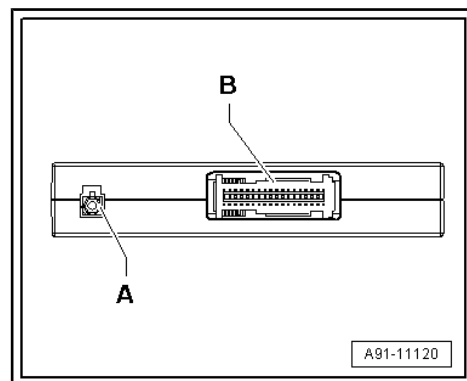


### 2.30.3 Telephone Transceiver -R36- Connectors, UHV

#### Telephone Transceiver -R36-

A - Connection GSM, Telephone Antenna -R65-, only on UHV Premium Light

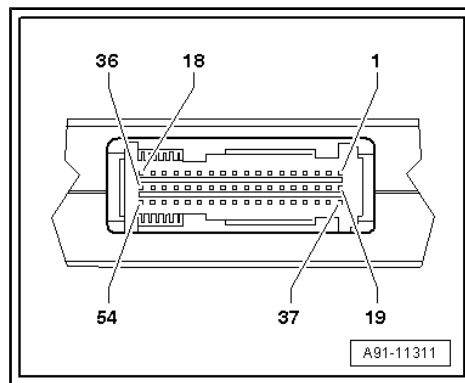
B - 54-Pin Connector





## B - 54-pin Connector

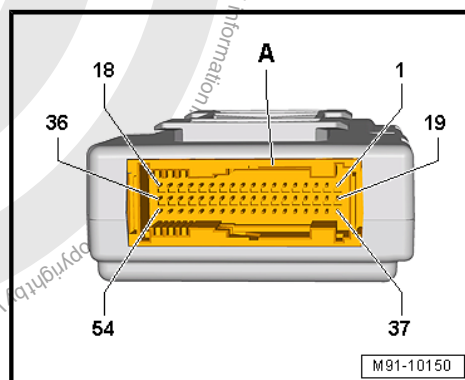
- 1 - Terminal 30
- 2 - Terminal 31
- 8 - LF (+) to radio
- 9 - LF (-) to radio
- 11 - Telephone microphone -R38- (+):
- 12 - Telephone Microphone (-):
- 17 - CAN Bus, High
- 18 - CAN Bus, Low
- 27 - Cellular telephone preparation control head -E508-
- 28 - Cellular Telephone Preparation Control Head
- 30 - Cellular Telephone Preparation Control Head
- 31 - Cellular Telephone Preparation Control Head
- 37 - Telephone baseplate -R126- (Does not apply to North American vehicles)
- 38 - Telephone baseplate (Does not apply to North American vehicles)
- 39 - Telephone baseplate (Does not apply to North American vehicles)
- 40 - Telephone baseplate (Does not apply to North American vehicles)
- 44 - Telephone baseplate (Does not apply to North American vehicles)
- 47 - Telephone baseplate (Does not apply to North American vehicles)
- 48 - Telephone baseplate (Does not apply to North American vehicles)



## 2.30.4 Cell Phone Operating Electronics Control Module -J412- Connectors, UMI

Cell Phone Operating Electronics Control Module -J412-

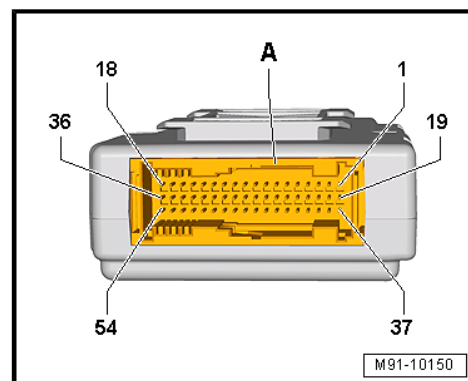
A - 54-Pin Connector





## A - 54-Pin Connector

- 1 - Terminal 30
- 2 - Terminal 31
- 3 - Switch on signal
- 4 - Tel-LF (+) left to Radio -R-
- 5 - Tel-LF (-) left to Radio -R-
- 6 - LF (+) from Control Module for Emergency Call Module And Communication Unit -J949-
- 7 - LF (-) from Control Module for Emergency Call Module And Communication Unit -J949-
- 8 - Tel-LF (+) right to Radio -R-
- 9 - Tel-LF (-) right to Radio -R-
- 10 - Not Assigned
- 11 - Telephone Microphone -R38- (+) from RNS
- 12 - Telephone Microphone -R38- (-) from RNS
- 13 - Not Assigned
- 14 - Not Assigned
- 15 - Not Assigned
- 16 - Not Assigned
- 17 - CAN Bus High
- 18 - Can Bus Low
- 19 - Not Assigned
- 20 - Not Assigned
- 21 - Not Assigned
- 22 - LF (+) right to Radio -R-, MDI
- 23 - LF (+) left to Radio -R-, MDI
- 24 - LF ground to the Radio -R-, MDI
- 25 - Not Assigned
- 26 - Not Assigned
- 27 - Not Assigned
- 28 - Not Assigned
- 29 - Not Assigned
- 30 - Cellular Telephone Preparation Control Head -E508-
- 31 - Cellular Telephone Preparation Control Head -E508-
- 32 - Not Assigned
- 33 - External Audio Source Connection -R199- left audio signal, AUX IN
- 34 - External Audio Source Connection -R199- right audio signal, AUX IN
- 35 - Audio ground from External Audio Source Connection - R199- , AUX IN
- 36 - Audio ground shielding from External Audio Source Connection -R199- , AUX IN





- 37 - Not Assigned
- 38 - Terminal 30 to Telephone Baseplate -R126-
- 39 - Not Assigned
- 40 - DIAG signal from Telephone Baseplate -R126-
- 41 - Not Assigned
- 42 - Not Assigned
- 43 - Not Assigned
- 44 - Not Assigned
- 45 - Not Assigned
- 46 - Not Assigned
- 47 - Wake UP to Telephone Baseplate -R126-
- 48 - DIAG signal from Telephone Baseplate -R126-
- 49 through 54 - not used

## 2.30.5 Telephone System Component Location

### 1 - Telephone Baseplate - R126-

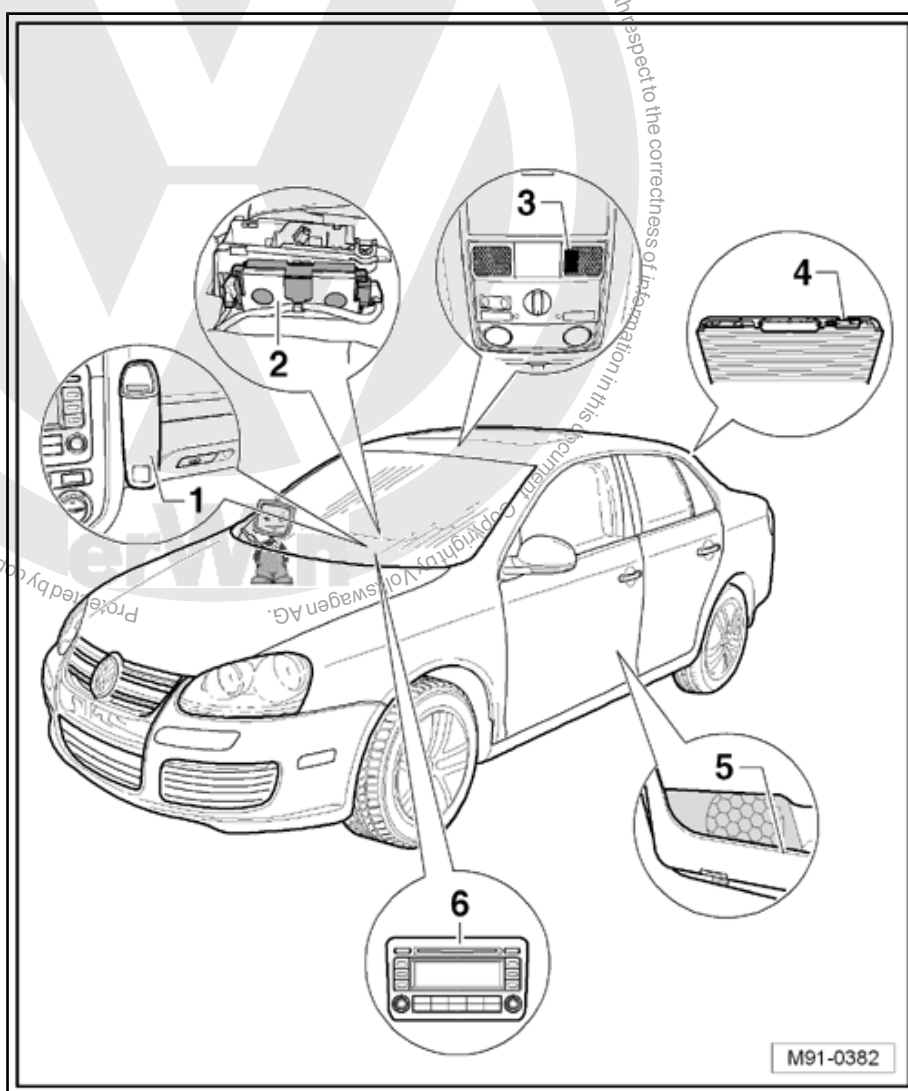
- ☐ Does not apply to North American vehicles

### 2 - Telephone Transceiver - R36-

- ☐ Under the right front seat
- ☐ Connector assignment through 06/2006. Refer to  
⇒ ["2.30.2 Telephone Transceiver R36 Connectors, Through 06.06", page 156](#) .
- ☐ Connector assignment (UHV). Refer to  
⇒ ["2.30.3 Telephone Transceiver R36 Connectors, UHV", page 157](#) .
- ☐ Removing and installing through 06/2006. Refer to  
⇒ ["5.20.3 Telephone Transceiver R36, through 06.06", page 238](#) .
- ☐ Removing and Installing, from 07/2006. Refer to  
⇒ ["5.20.4 Telephone Transceiver R36, from 07.06", page 238](#) .

### 3 - Front Interior Lamp -W1-

- ☐ Telephone microphone -R38-
- ☐ Cellular telephone preparation control head -E508-





- ❑ Removing and installing telephone microphone -R38-, refer to  
⇒ [“5.20.5 Telephone Microphone R38”, page 239](#)
- ❑ Removing and installing cellular telephone preparation control head -E508-, refer to  
⇒ [“5.20.6 Cellular Telephone Preparation Control Head E508”, page 240](#)

#### 4 - Telephone Antenna -R65-

- ❑ At the top of the rear window on the left side
- ❑ Antenna systems, Sedan. Refer to ⇒ [“2.2 Antenna Systems”, page 65](#) .

#### 5 - Speaker system

#### 6 - Radio/RNS

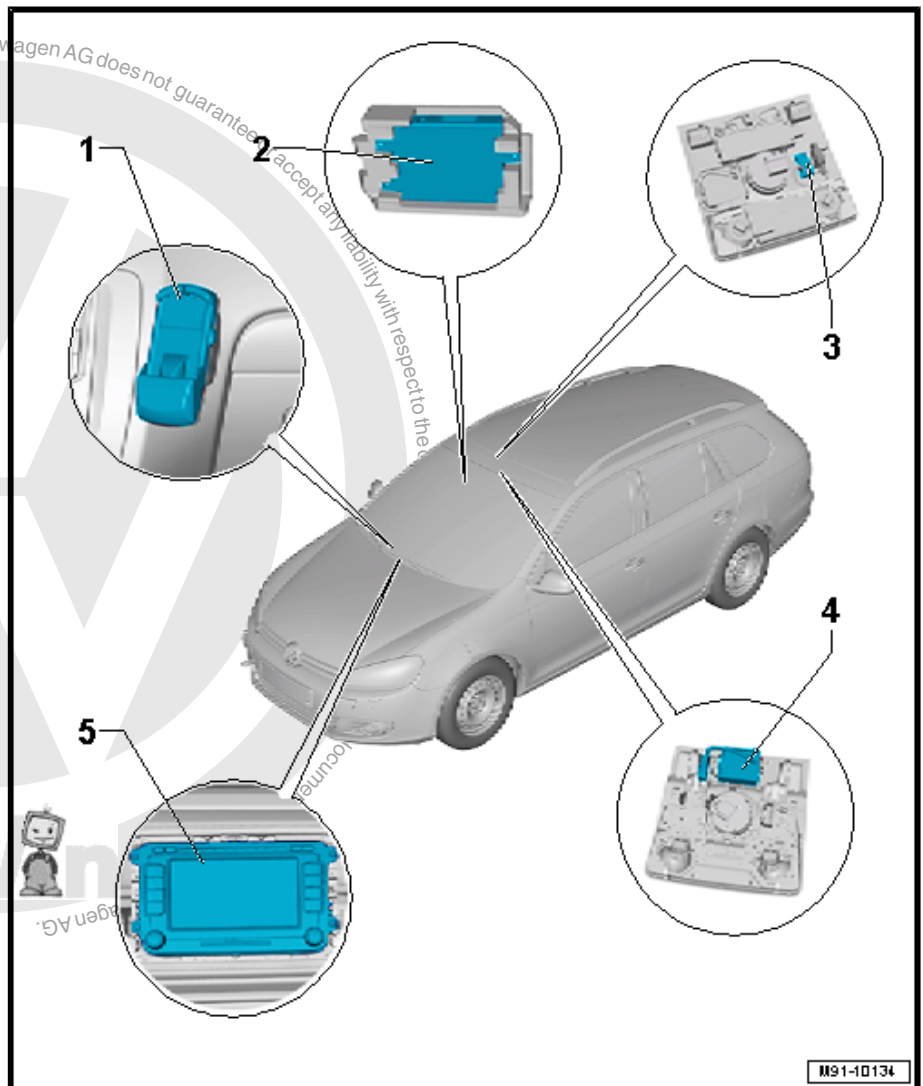
## 2.30.6 Telephone System Component Location

### 1 - Telephone Baseplate - R126-

- ❑ On the right of the instrument panel
- ❑ Removing and installing through 06/2006. Refer to  
⇒ [“5.20.1 Telephone Baseplate R126, through 06.06”, page 236](#) .
- ❑ Removing and Installing, from 07/2006. Refer to  
⇒ [“5.20.2 Telephone Baseplate R126, from 07.06”, page 237](#) .

### 2 - Telephone Transceiver - R36-

- ❑ Under the right front seat
- ❑ Connector assignment through 06/2006. Refer to  
⇒ [“2.30.2 Telephone Transceiver R36 Connectors, Through 06.06”, page 156](#) .
- ❑ Connector assignment (UHV). Refer to  
⇒ [“2.30.3 Telephone Transceiver R36 Connectors, UHV”, page 157](#) .
- ❑ Removing and installing through 06/2006. Refer to  
⇒ [“5.20.3 Telephone Transceiver R36, through 06.06”, page 238](#) .
- ❑ Removing and Installing, from 07/2006. Refer to  
⇒ [“5.20.4 Telephone Transceiver R36, from 07.06”, page 238](#) .



### Telephone Transceiver -R36- / Multimedia System Control Module -J650-, UMI

- ❑ Inside the center console/glove compartment
- ❑ Connector assignment. Refer to  
⇒ [“2.30.4 Cell Phone Operating Electronics Control Module J412 Connectors, UMI”, page 158](#) .





- ❑ Removing and installing. Refer to  
⇒ [“5.20.7 Cell Phone Operating Electronics Control Module J412 , UMI”](#), page 240 .

### 3 - Telephone Microphone -R38-

- ❑ Removing and installing. Refer to ⇒ [“5.20.5 Telephone Microphone R38 ”](#), page 239 .

### 4 - Cellular Telephone Preparation Control Head -E508-

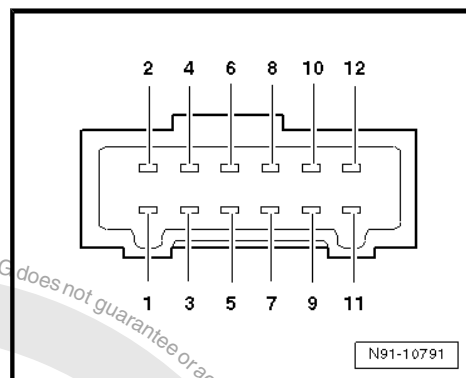
- ❑ Removing and installing. Refer to  
⇒ [“5.20.6 Cellular Telephone Preparation Control Head E508 ”](#), page 240 .

### 5 - Radio/RNS

## 2.31 USB Connection Baseplate -R193- Connector

### 12-pin Connector

- 1 - DATA IN
- 2 - CLOCK
- 3 - Terminal 31
- 4 - DATA OUT
- 5 - Not used
- 6 - Terminal 30
- 7 - Right audio
- 8 - Control signal from the radio
- 9 - Audio ground
- 10 - Left audio
- 11 - Not used
- 12 - Not used







### 3 Specifications

⇒ "3.1 Fastener Tightening Specifications", page 163

⇒ "3.2 Cellular Telephone and Two-Way Radios, Transmitted Output, Antenna Installation Locations", page 163

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Amplifier to Body Nut	-	6
Antenna Amplifier to C-Pillar Screw	-	2
FM frequency Filter in Positive Wire to C-Pillar	-	2
Frequency Crossover	-	1.5
Front Mid-Range Speaker	-	1.5
Radio to Center Console Screw	-	1.5
Roof Antenna to Body Nut	-	7
Satellite Radio to Rear Shelf	-	4
Satellite Tuner Antenna to Body Nut	-	7
Subwoofer in Rear Shelf	-	4

#### 3.2 Cellular Telephone and Two-Way Radios, Transmitted Output, Antenna Installation Locations

Designation	Pmax/Watt	Prescribed antenna installation locations
Shortwave < 54 MHz	100 (PEAK) <sup>1)</sup>	Front center of roof Center of roof Rear center of roof Rear bumper
4 m-Band	20 (eff.) <sup>2)</sup>	All locations on vehicle exterior
2 m-Band	20 (eff.)	Front fender Front center of roof
2 m-Band	50 (eff.)	Center of the roof center of the roof at the rear Rear fender
70 cm	50 (eff.)	Front center of roof Center of roof Rear center of roof
23 cm	20 (eff.)	All locations on vehicle exterior
TETRA/TETRAPOL	25 (eff.)	All locations on vehicle exterior
D-network/GSM 900	20 (Peak)	All locations on vehicle exterior
E-Network/GSM 1800 GSM 1900/UMTS	10 (Peak)	All locations on vehicle exterior

1) PEAK = max. carrier power (Peak Envelope Power)

2) eff. = effective transmission output

Deviations from these guidelines (location of antenna, frequency, output) are only permitted in special isolated cases after a single-case test carried out by the EMV center of VW AG in Wolfsburg.

EMV = Electromagnetic Compatibility.



## 4 Diagnosis and Testing

⇒ [“4.1 Amplifier R12 , Reading Measured Values”, page 164](#)

⇒ [“4.2 CD Changer R41 , Checking”, page 165](#)

⇒ [“4.3 Low Entry Radio Components, Adapting ”, page 165](#)

⇒ [“4.4 iPod Baseplate R192 , Troubleshooting”, page 165](#)

⇒ [“4.5 Multifunction Steering Wheel Functions, Adapting ”, page 166](#)

⇒ [“4.6 Multimedia System Control Module J650 , Coding”, page 166](#)

⇒ [“4.7 Multimedia System Control Module J650, Output Diagnostic Test”, page 167](#)

⇒ [“4.8 Premium 7 Components, Adapting ”, page 167](#)

⇒ [“4.9 RCD 210, Adapting”, page 167](#)

⇒ [“4.10 RCD 300, Adapting”, page 168](#)

Wagon ⇒ [“4.11 RCD 030+, Adapting”, page 168](#)

Wagon ⇒ [“4.12 RCD 300+, Adapting”, page 168](#)

⇒ [“4.13 RCD-310 Entry Components, Adapting ”, page 168](#)

⇒ [“4.14 Premium 8 Components, Adapting ”, page 169](#)

⇒ [“4.15 RCD 500, Adapting”, page 169](#)

⇒ [“4.16 RNS 300, Adapting”, page 169](#)

⇒ [“4.17 RNS 310, Adapting”, page 170](#)

Wagon ⇒ [“4.18 RNS 315, Adapting”, page 170 .](#)

Wagon ⇒ [“4.19 RNS 315+, Adapting”, page 170](#)

⇒ [“4.20 RCD 510 Functions, Adapting ”, page 170](#)

⇒ [“4.21 RNS MFD 2 DVD, Adapting”, page 171 .](#)

Wagon ⇒ [“4.22 RCD 510+, Adapting”, page 171](#)

⇒ [“4.23 RNS 510, Adapting”, page 171](#)

⇒ [“4.24 Satellite Radio R146 , Activating”, page 172](#)

⇒ [“4.25 USB Connection Baseplate R193 , Troubleshooting”, page 172](#)

### 4.1 Amplifier -R12- , Reading Measured Values

#### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

#### Procedure

- Connect Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**
- Using the **Go To** button, select “Functions/Component selection” and the following menu options in sequence:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ Sound system
- ◆ Sound System functions
- ◆ Sound System measured values

## 4.2 CD Changer -R41- , Checking

The CD changer is not CAN diagnostic capable.

Use the Vehicle Diagnostic Tester to check the wire connections and DTC memory entries for RCD/RNS.

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Sound System electrical components

## 4.3 Low Entry Radio Components, Adapting

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Using the Go To button, select “Functions/Component selection” and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.4 iPod Baseplate -R192- , Troubleshooting

### Special tools and workshop equipment required

- ◆ Hand-Held Multimeter -VAG 1526C-
- ◆ Connector Test Kit -VAG 1594C-

The iPod baseplate does not have CAN diagnostic capabilities.

The voltage supply can be checked at the connector.

### Test Conditions

- ◆ iPod OK, refer to the Operating Instructions.
- ◆ iPod RESET performed, refer to the Operating Instructions.
- ◆ Fuse OK. Refer to Wiring diagrams, Troubleshooting & Component locations.



- ◆ Radio/RNS no faults using Vehicle Diagnostic Tester.

#### Procedure

- Remove the iPod baseplate. Refer to  
⇒ ["5.11 iPod Baseplate R192", page 190](#).
- Disconnect the connector under the iPod baseplate.
- Turn on the radio/RNS
- Measure the voltage between contacts 3 and 6 as well as between contacts 3 and 8 on the wiring harness connector using -VAG 1526C- and the cables from the -VAG 1594C-.

Specified value: approximately 12 V.

- Turn off the radio/RNS.

Voltage values not OK:

- Check the wire connection between the radio and the iPod baseplate according to the wiring diagram. Refer to Wiring diagrams, Troubleshooting & Component locations.

Voltage values OK:

- Replace the iPod baseplate.

## 4.5 Multifunction Steering Wheel Functions, Adapting

#### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

#### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Using the Go To button, select "Functions/Component selection" and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Steering wheel electronics
- ◆ Functions of steering wheel electronics

## 4.6 Multimedia System Control Module - J650- , Coding

#### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

#### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Using the Go To button, select "Functions/Component selection" and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems



- ◆ Multimedia system control module
- ◆ Multimedia system control module functions
- ◆ Multimedia Control Module, Coding

## 4.7 Multimedia System Control Module - J650,- Output Diagnostic Test

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

#### Procedure

Connect Vehicle Diagnostic Tester.

Select Guided Fault Finding.

Using the Go To button, select "Functions/Component selection" and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Multimedia system control module
- ◆ Multimedia system control module functions
- ◆ Output diagnostic test, left and right audio channels

## 4.8 Premium 7 Components, Adapting

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

#### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Using the Go To button, select "Functions/Component selection" and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.9 RCD 210, Adapting

#### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System



- ◆ Radio functions

## 4.10 RCD 300, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.11 RCD 030+, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.12 RCD 300+, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.13 RCD-310 Entry Components, Adapting

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.



- Using the **GO TO** button, select “Functions/Component selection” and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio code inquiry

## 4.14 Premium 8 Components, Adapting

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

### Procedure

- Connect Vehicle Diagnostic Tester.

Select **Guided Fault Finding**.

- Using the **GO TO** button, select “Functions/Component selection” and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.15 RCD 500, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.16 RNS 300, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Radio/navigation system



- ◆ Radio/navigation system functions

## 4.17 RNS 310, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Radio/navigation system
- ◆ Radio/navigation system functions

## 4.18 RNS 315, Adapting

### Procedure

- ⇒ Vehicle diagnostic tester Connect.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Radio/navigation system
- ◆ Radio/navigation system functions

## 4.19 RNS 315+, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Radio/navigation system
- ◆ Radio/navigation system functions

## 4.20 RCD 510 Functions, Adapting

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.





- Using the **Go To** button, select “Functions/Component selection” and the following menu options in sequence:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - On Board Diagnostic (OBD) capable systems
- ◆ Sound System
- ◆ Radio functions

## 4.21 RNS MFD 2 DVD, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions

## 4.22 RCD 510+, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Sound System
  - ◆ Radio functions

## 4.23 RNS 510, Adapting

### Procedure

- Connect the Vehicle Diagnostic Tester.
- Select **Guided Fault Finding**.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Radio/navigation system
  - ◆ Radio/navigation system functions





## 4.24 Satellite Radio -R146- , Activating

### Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester

### Procedure

- Connect Vehicle Diagnostic Tester.
- Select Guided Fault Finding.
- Using the Go To button, select “Functions/Component selection” and the following menu options in sequence:
  - ◆ Body
  - ◆ Electrical Equipment
  - ◆ 01 - On Board Diagnostic (OBD) capable systems
  - ◆ Digital radio tuner
  - ◆ Digital radio tuner functions
  - ◆ Satellite tuner digital activation

## 4.25 USB Connection Baseplate -R193- , Troubleshooting

### Special tools and workshop equipment required

- ◆ Hand-Held Multimeter -VAG 1526C-
- ◆ Connector Test Kit -VAG 1594C-

The USB connection does not have CAN diagnostic capabilities.

The voltage supply can be checked at the connector.

### Test Conditions

- ◆ USB memory stick/MP3 player OK, refer to the Operating Instructions.
- ◆ Fuse OK. Refer to Wiring diagrams, Troubleshooting & Component locations.
- ◆ Radio/RNS no faults using Vehicle Diagnostic Tester.

### Procedure

- Remove the USB connection baseplate. Refer to [“5.21 USB Connection Baseplate R193”, page 240](#).
- Disconnect the connector under the USB connection baseplate.
- Turn on the radio/RNS
- Measure the voltage between contacts 3 and 6 as well as between contacts 3 and 8 on the wiring harness connector using -VAG 1526C- and the cables from the -VAG 1594C- .

Specified value: approximately 12 V.

- Turn off the radio/RNS.

Voltage values not OK:

- Check the wire connections between the radio and the USB connection baseplate according to the wiring diagram. Refer to Wiring diagrams, Troubleshooting & Component locations.

Voltage values OK:

- Replace the USB connection baseplate.



## 5 Removal and Installation

⇒ ["5.1 Amplifier R12 ", page 173](#)

Sedan ⇒ ["5.2 Antenna Systems", page 174](#)

Wagon ⇒ ["5.3 Antenna Systems", page 180](#)

⇒ ["5.4 CD Changer R41 ", page 182](#)

Sedan

⇒ ["5.5 Compass Magnetic Field Sensor G197 ", page 183](#)

Wagon

⇒ ["5.6 Compass Magnetic Field Sensor G197 ", page 183](#)

⇒ ["5.7 External Audio Source Connection R199 ", page 184](#)

⇒ ["5.8 External Audio Source Connection 2 R231 USB Port", page 186](#)

⇒ ["5.9 Frequency Filter", page 188](#)

⇒ ["5.10 iPod Baseplate R192 Adapter", page 189](#)

⇒ ["5.11 iPod Baseplate R192 ", page 190](#)

⇒ ["5.12 Multifunction Steering Wheel Components", page 191](#)

⇒ ["5.13 Multimedia System Control Module J650 ", page 193](#)

⇒ ["5.14 Rearview Camera R189 ", page 194](#)

⇒ ["5.15 Radios", page 195](#)

⇒ ["5.16 Radio/Navigation Display Control Module J503 ", page 214](#)

Sedan ⇒ ["5.17 Satellite Radio R146 ", page 230](#)

Wagon ⇒ ["5.18 Satellite Radio R146 ", page 231](#)

⇒ ["5.19 Speakers", page 232](#)

⇒ ["5.20 Telephone System Components", page 236](#)

⇒ ["5.21 USB Connection Baseplate R193 ", page 240](#)

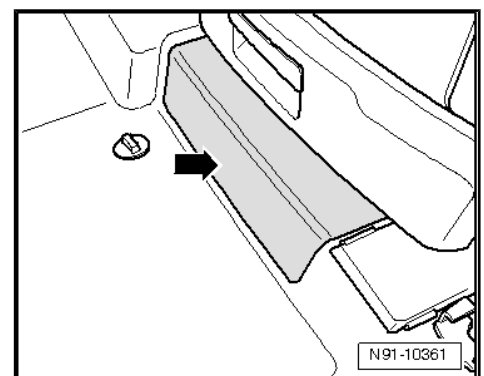
⇒ ["5.22 Vehicle GPS Control Module", page 241](#)

### 5.1 Amplifier -R12-

The amplifier is under the left front seat.

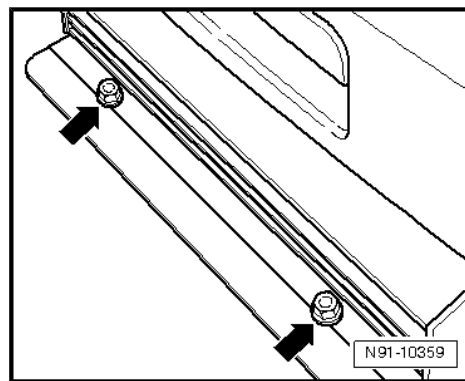
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Move the left front seat into its highest position and the move it all the back.
- Remove the lower cover -arrow- from the seat.





- Remove the nuts -arrows- from the amplifier.
- Remove the amplifier just far enough until the connectors are accessible.



- Disconnect the connectors from the amplifier -arrows-.
- Remove the amplifier.

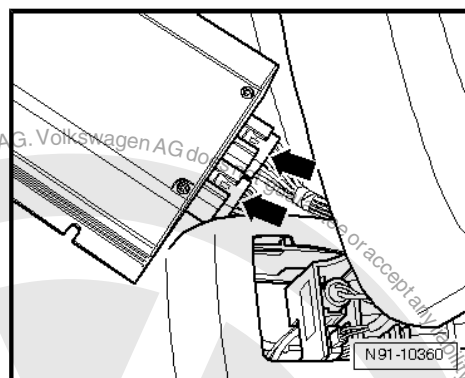
#### Installing

- Slide the amplifier correctly into the notch on the bracket.

Install in reverse order of removal.

#### Tightening Specifications

- ◆ Refer to  
⇒ [“2.29.6 Speaker System Component Location Overview”, page 153](#).



## 5.2 Antenna Systems

⇒ [“5.2.1 Right Antenna Module R109”, page 174](#)

⇒ [“5.2.2 GPS Antenna R50”, page 175](#)

⇒ [“5.2.3 Telephone Antenna R65”, page 176](#)

⇒ [“5.2.4 Satellite Antenna R170”, page 177](#)

⇒ [“5.2.5 FM Frequency Filter In Positive Wire R179”, page 178](#)

⇒ [“5.2.6 FM Frequency Filter In Negative Wire R178”, page 179](#)

### 5.2.1 Right Antenna Module-R109-

#### Removing

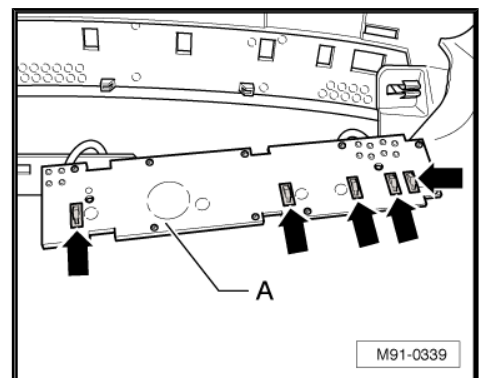
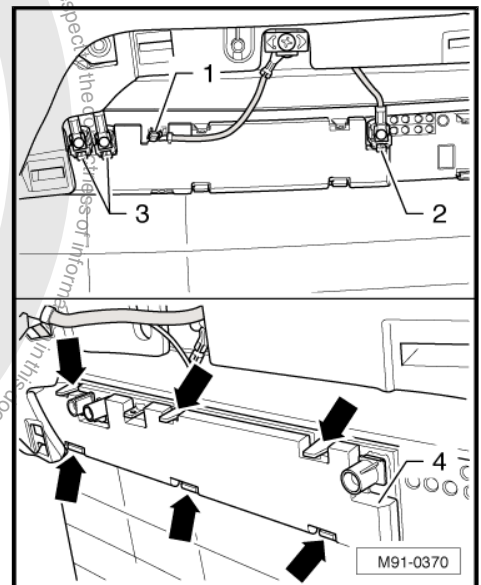
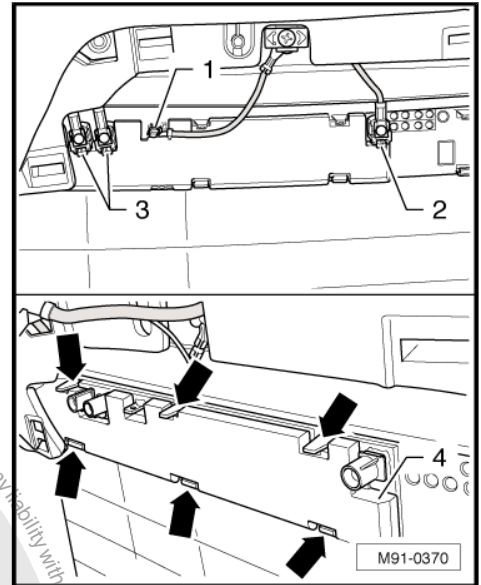
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the roof end strip. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .



- Disconnect the connectors -1- through -3-.
- Loosen the front clips -arrows- and move the Right Antenna Module -R109- downward.
- Loosen the clips -arrows- in the rear and remove the Right Antenna Module -R109- -4-.

#### Installing

- Insert the Right Antenna Module -R109- -4- into the clips -arrows- in the rear.
- Move the Right Antenna Module -R109- -4- upward and clip it into the front clips -arrows-.



#### Note

*The contacts on the Right Antenna Module -R109- -arrows- must not get bent and must clean to prevent any reception problems.*

Install in reverse order of removal.

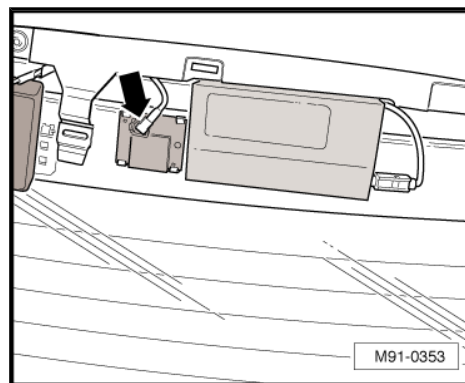
## 5.2.2 GPS Antenna -R50-

### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the roof end strip. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .



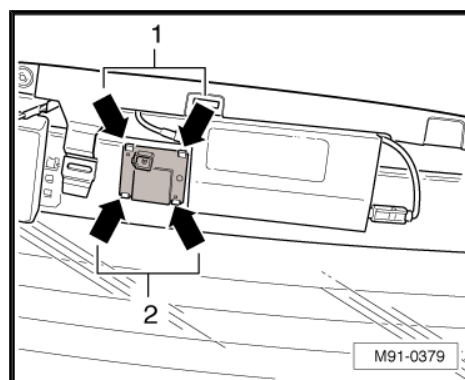
- Disconnect the connector -arrow- from the GPS Antenna -R50- .



- Loosen the front clips -arrows 1- first.
- Move the GPS Antenna -R50- downward and remove it from the bottom clips -arrows 2-.

#### Installing

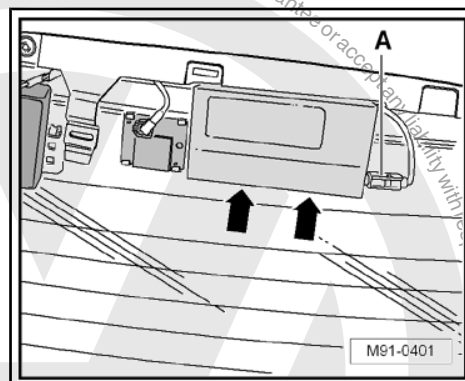
Install in reverse order of removal.



### 5.2.3 Telephone Antenna -R65-

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the roof end strip. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect the connector -A- from the Telephone Antenna -R65- .

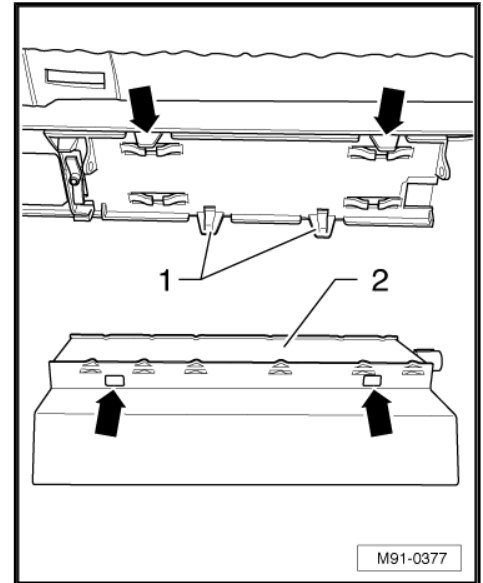




- Loosen the clips -arrows-.
- Move the Telephone Antenna -R65- to the rear and remove it.

#### Installing

Install in reverse order of removal.



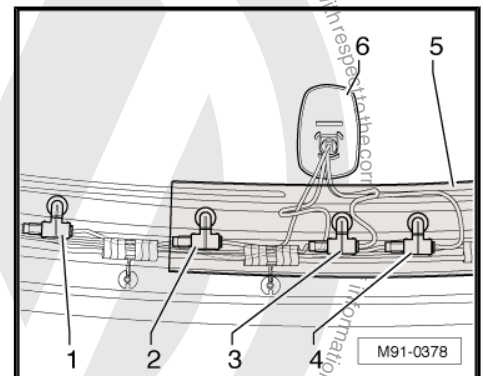
### 5.2.4 Satellite Antenna -R170-

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Lower the back of the headliner. Refer to ➤ Body Interior; Rep. Gr. 70 ; Removal and Installation .

Depending on the equipment level, the Satellite Antenna -R170- can have two or four wires. These are mounted to the roof crossmember.

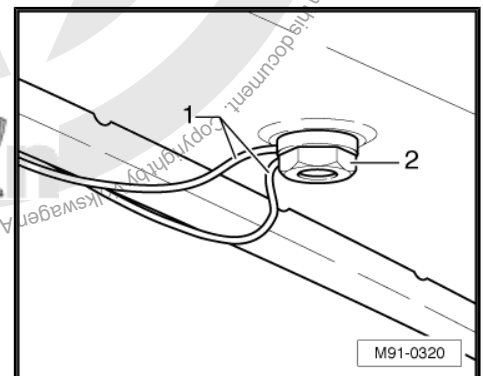
- Remove the foam pad -5-.
- Unlock and disconnect the connectors -1- through -4- and then free up the antenna wires up to the Satellite Antenna -R170- -6-.



- Remove the nut -2- and then remove the Satellite Antenna -R170- upward.

#### Installing

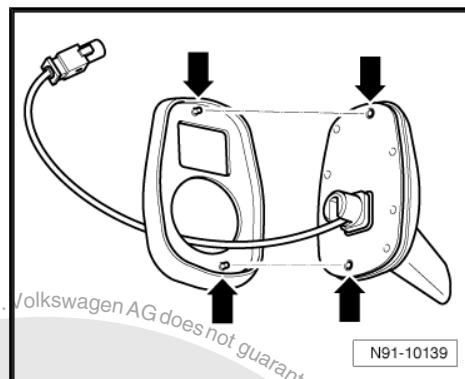
Install in reverse order of removal. Note the following:







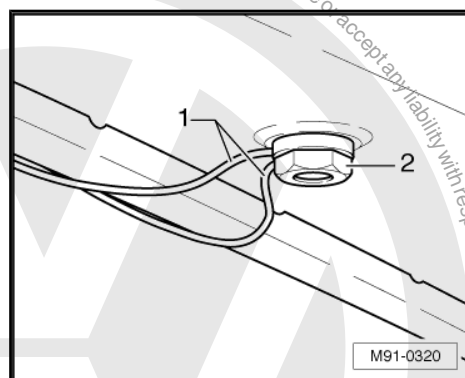
- When inserting the roof antenna, ensure that the seal is properly seated. Both guide protrusions of the seal must be seated in the appropriate holes -arrows- in antenna base.



- Make sure the antenna wires -1- are routed correctly through the opening in the nut -2- after mounting the roof antenna.

#### Tightening Specifications

- ◆ Refer to  
⇒ ["2.2.2 Antenna System Component Location", page 67](#) .



### 5.2.5 FM Frequency Filter In Positive Wire - R179-

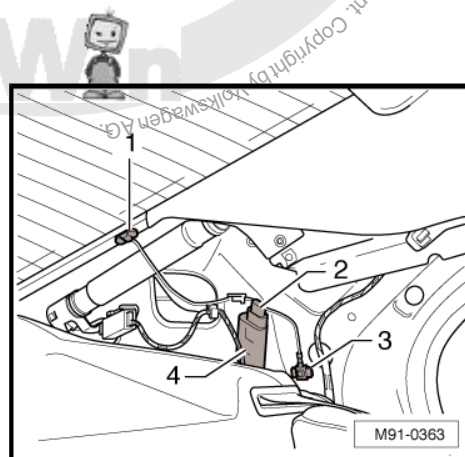
The frequency filter is clipped on the upper C-pillar on the left.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the left C-pillar trim piece. Refer to [Body Interior; Rep. Gr. 70](#) ; Removal and Installation .
- Disengage the connector -2- and disconnect.
- Remove ground wire -3-.
- Unclip the FM Frequency Filter In Positive Wire -R179- -4- from the C-pillar.

The positive wire runs inside the wiring harness to the Vehicle Electrical System Control Module -J519- . Refer to Wiring diagrams, Troubleshooting & Component locations.

- Disconnect the positive cable.







The wire from the connector -2- to the rear window is soldered to the rear window -1-.

#### Installing

- Connect the FM Frequency Filter In Positive Wire -R179- to the positive wire in the wiring harness. Use the Wiring Harness Repair Set -VAS 1978B- .



#### Note

*The positive wire on the new FM Frequency Filter In Positive Wire -R179- can be shortened.*

Install in reverse order of removal.

#### Tightening Specifications

- ◆ Refer to  
⇒ [“2.2.2 Antenna System Component Location”, page 67](#) .

## 5.2.6 FM Frequency Filter In Negative Wire - R178-

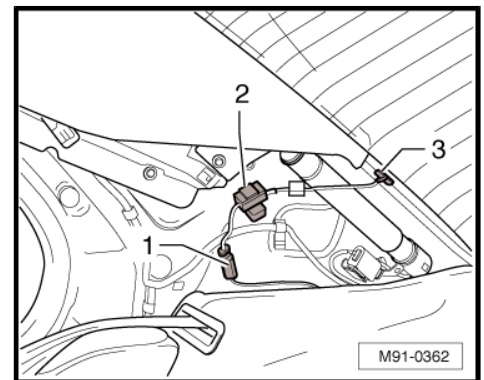
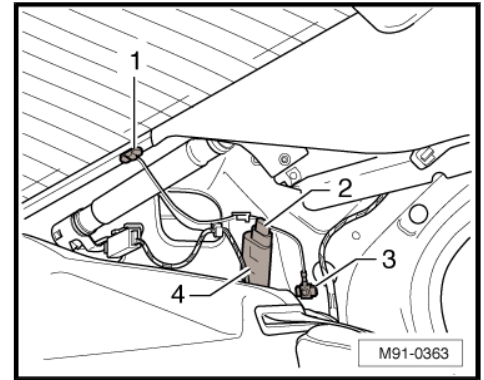
The frequency filter is clipped on the upper C-pillar on the right.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the right C-pillar trim piece. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disengage the connector -2- and disconnect.
- Unclip the FM Frequency Filter in Negative Wire -R178- -1- from the C-pillar.

The negative wire (ground) runs in the wiring harness to the ground point “61”. Refer to Wiring diagrams, Troubleshooting & Component locations.

- Disconnect the ground cable.



The wire from the connector -2- to the rear window is soldered to the rear window -3-.

#### Installing

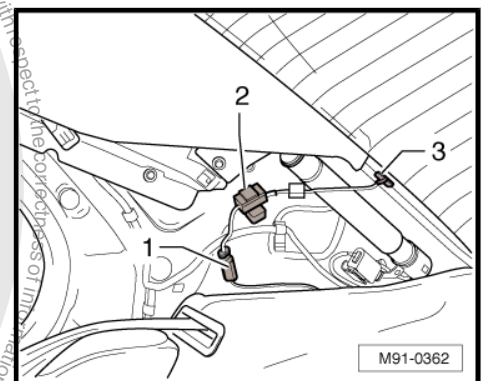
- Connect the FM Frequency Filter in Negative Wire -R178- to the negative wire in the wiring harness. Use the Wiring Harness Repair Set -VAS 1978B- .



#### Note

*The negative wire on the new FM Frequency Filter in Negative Wire -R178- can be shortened.*

Install in reverse order of removal.





## 5.3 Antenna Systems

⇒ ["5.3.1 Antenna Amplifiers R24 / R111", page 180](#)

⇒ ["5.3.2 Roof Antenna", page 180](#)

⇒ ["5.3.3 Vehicle GPS Antennas", page 181](#)

### 5.3.1 Antenna Amplifiers -R24- / -R111-

The Antenna Amplifier -R24- / Antenna Amplifier 2 -R111- are located on the left and right C-pillars. Removing and installing is identical.

#### Removing

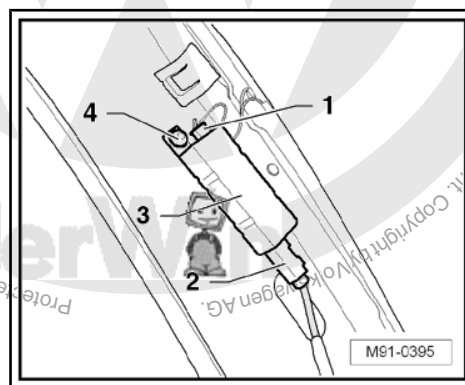
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the C-pillar trim panel. Refer to ➤ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect the connectors -1- and -2-.
- Remove the screw -4- and then remove the antenna amplifier -3- from the C-pillar.

#### Installing

Install in reverse order of removal.

#### Tightening Specifications

- ◆ Refer to  
⇒ ["2.3.3 Antenna System Component Location", page 71](#) .



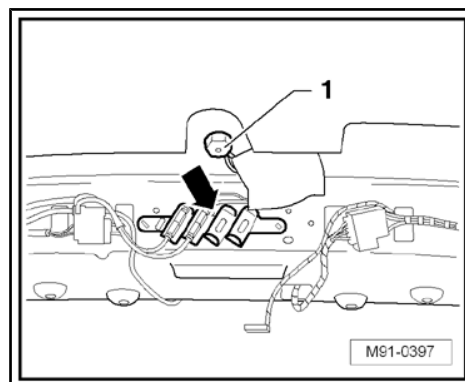
### 5.3.2 Roof Antenna

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Lower the back of the headliner. Refer to ➤ Body Interior; Rep. Gr. 70 ; Removal and Installation .

Depending on the equipment level, the roof antenna can have 1 to 5 wires. These are mounted to the roof crossmember -arrow-.

- Unlock and disconnect the connectors -arrow- and free up the antenna wires up to the roof antenna -1-.





- Remove the nut -2- and the roof antenna.

### Installing

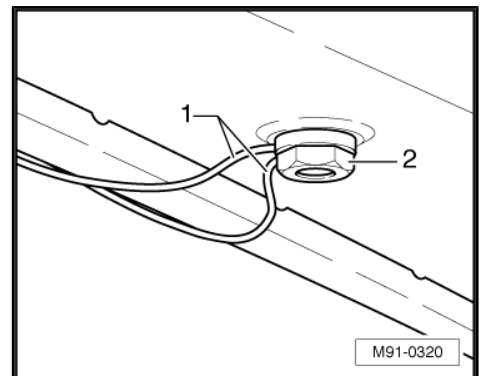
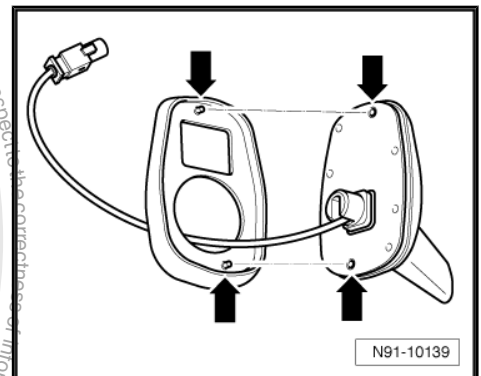
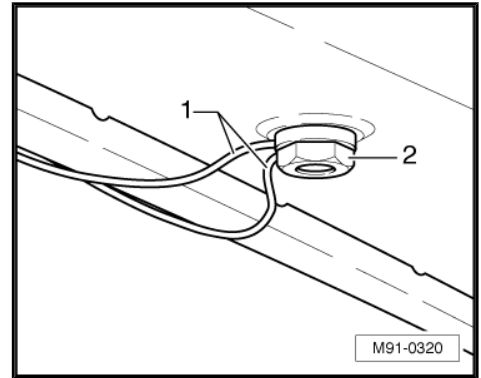
Install in reverse order of removal. Note the following:

When inserting the roof antenna, ensure that the seal is properly seated. Both guide protrusions of the seal must be seated in the appropriate holes -arrows- in antenna base.

- Make sure the antenna wires -1- are routed correctly through the opening in the nut -2- after mounting the roof antenna.

### Tightening Specifications

- ◆ Refer to  
⇒ ["2.3.3 Antenna System Component Location", page 71](#).



## 5.3.3 Vehicle GPS Antennas

The Vehicle GPS Antenna 1 -R259- and Vehicle GPS Antenna 2 -R260- are located behind the rear bumper cover.

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.

The vehicle GPS antennas are bonded to the bumper cover.

- Remove the rear bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Description and Operation .

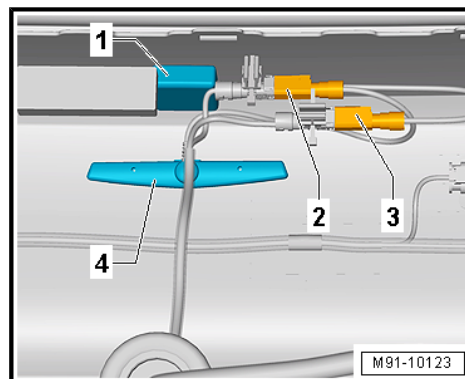


- Release and disconnect the connectors -2 and 3-.
- Remove the vehicle GPS antennas -1 and 4- from the bumper cover using a suitable tool.

#### Installing

- Clean the adhesive areas thoroughly with isopropyl (degreaser).
- Remove the adhesive film cover from the vehicle GPS antenna.
- Forcefully press the vehicle GPS antenna onto the adhesive area and secure the wires up to the couplings.

Install in reverse order of removal.



## 5.4 CD Changer -R41-

### Special tools and workshop equipment required

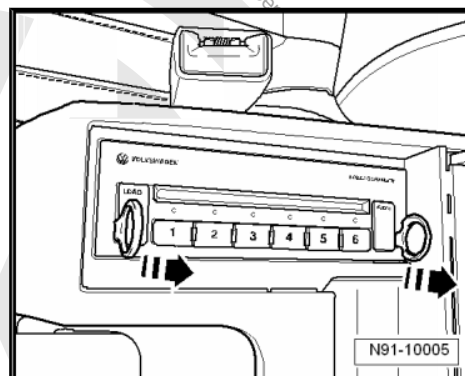
- ◆ Radio Removal Tool -VAS 3316-

The CD changer is inside the center console.

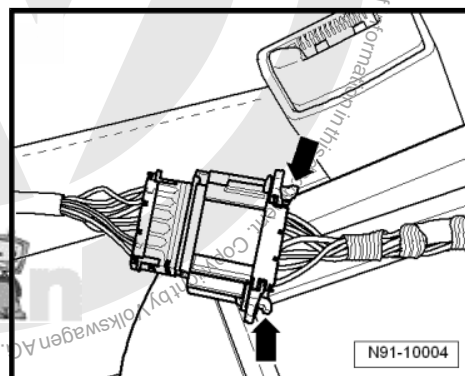
### Removing

Check the CD changer before removing it. Refer to  
⇒ ["4.2 CD Changer R41 , Checking", page 165](#) .

- Open the center armrest.
- If there is a CD still in the player, remove it. Refer to the owner's manual.
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Insert the -VAS 3316- into the slot on both sides of the CD changer until they click into place.
- Remove the CD changer using the -VAS 3316- -arrows-.



- Disconnect the connectors marked with -arrows-.

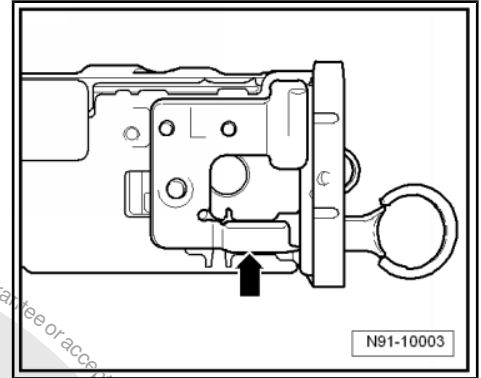




- Press on the locking clip -arrow- and pull out the -VAS 3316- .

#### Installing

Install in reverse order of removal.

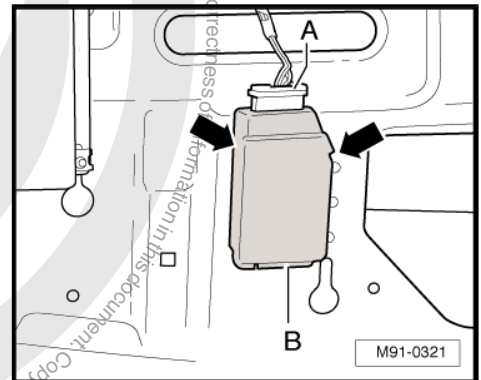


## 5.5 Compass Magnetic Field Sensor -G197-

The compass magnetic field sensor is clipped into the rear shelf. It is accessible from the luggage compartment.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the compass magnetic field sensor -arrows-.

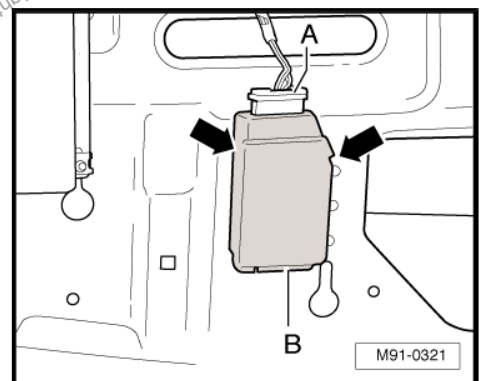


- Disconnect the connectors -A-.
- Remove the compass magnetic field sensor -B-.

#### Installing

Install in reverse order of removal.

- Calibrate the compass again.



## 5.6 Compass Magnetic Field Sensor -G197-

The compass magnetic field sensor is attached to the rear of the roof near the roof end strip.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Lower the rear headliner. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

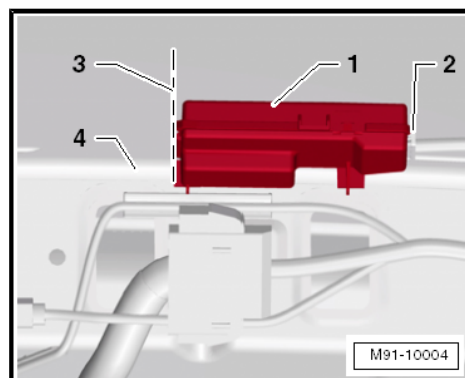
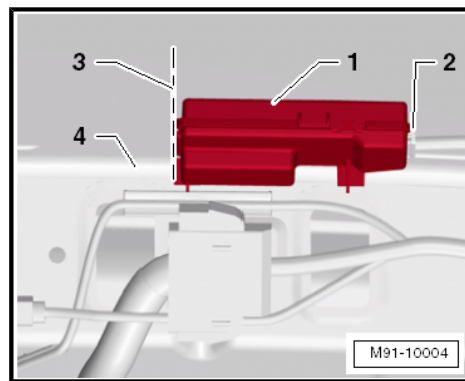


- Remove the compass magnetic field sensor -1- from the roof with a small screwdriver.
- Disconnect the connector -2- and remove the compass magnetic field sensor -1-.

### Installing

The compass magnetic field sensor includes adhesive tape.

- Clean the adhesive surface on the roof.
- Connect the connector -2- to the compass magnetic field sensor -1-.
- Remove the peel-off backing from the compass magnetic field sensor.

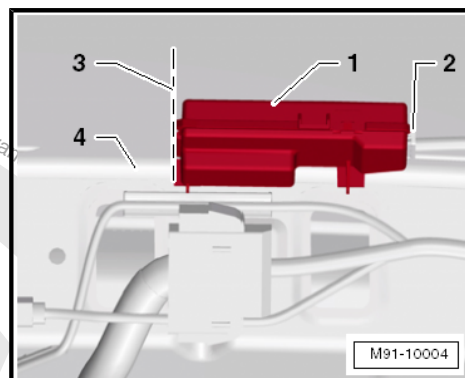


Align the magnetic field sensor for compass with the edge of the roof end -4- and the mark -3-.

- Firmly press the compass magnetic field sensor -1- onto the adhesive surface.

Install in reverse order of removal.

- Calibrate the compass again.



## 5.7 External Audio Source Connection - R199-

⇒ [“5.7.1 In Glove Compartment”, page 184](#)

⇒ [“5.7.2 In Center Console”, page 185](#)

⇒ [“5.7.3 In Center Console Storage Compartment”, page 185](#)

### 5.7.1 In Glove Compartment

Special tools and workshop equipment required

- ♦ Locking Pin -T40011-

#### Removing

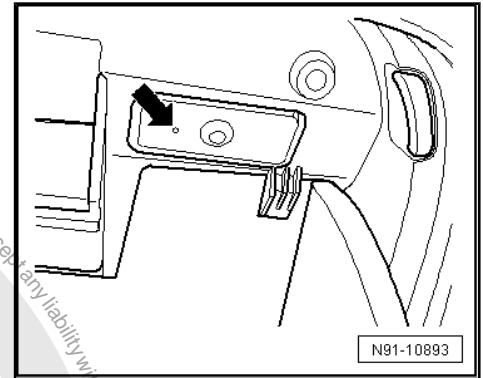
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Open glove compartment cover.



- Install the -T40011- into the opening -arrow- until it locks.
- Unclip the external audio source connection from the glove compartment trim using a small screwdriver.
- Disconnect the connector.

#### Installing

Install in reverse order of removal.



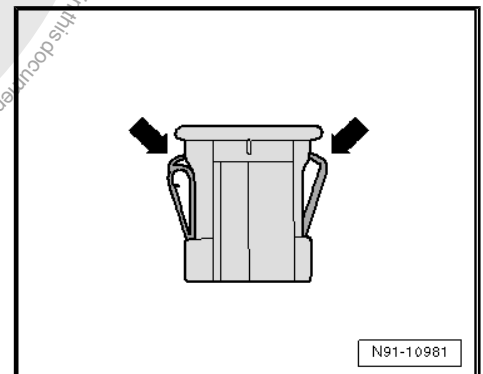
### 5.7.2 In Center Console

#### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

#### Removal

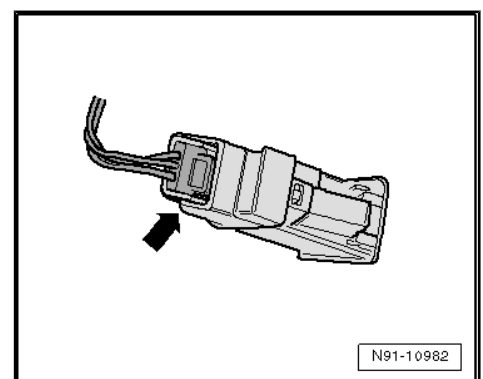
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove center console. Refer to Storage Compartments, Covers and Trim in ➔ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Squeeze the clips -arrows- on the external audio source connection using -3409- and remove the external audio source connection.



- Disconnect the connector -arrows-.

#### Installation

Install in reverse order of removal.



### 5.7.3 In Center Console Storage Compartment

#### Special tools and workshop equipment required

- ◆ Trim Removal Wedge -VAS 3409-

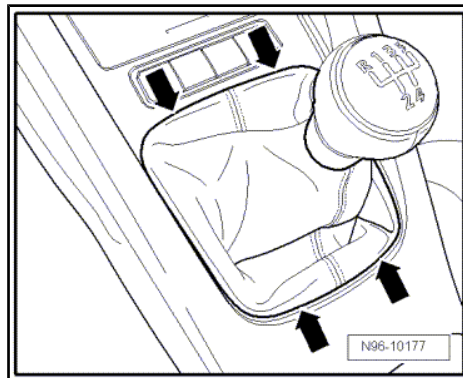
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.

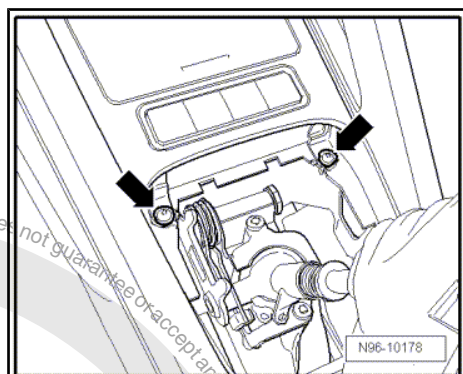




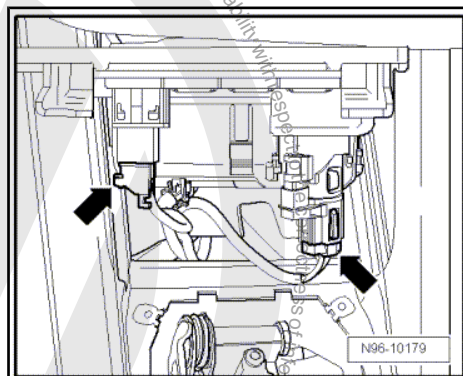
- Carefully pry the selector lever boot out of the center console -arrows-.



- Remove screws -arrows-.
- Remove the center console storage compartment.



- Disconnect the connectors -arrows-.

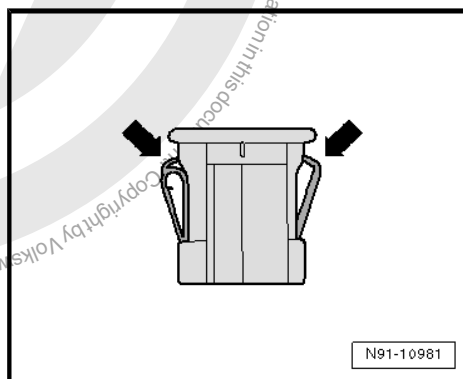


- Squeeze the clips -arrows- on the external audio source connection using -3409- and remove the external audio source connection.

#### Installation

Install in reverse order of removal.

**Torque Specifications: 1.5 Nm**



## 5.8 External Audio Source Connection 2 - R231- USB Port

### Special tools and workshop equipment required

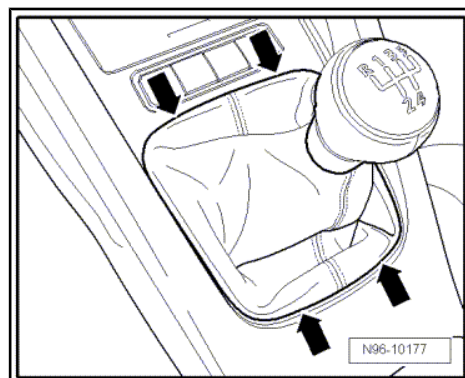
- ◆ Trim Removal Wedge -3409-
- Switch off the ignition and all electrical consumers and remove the ignition key.



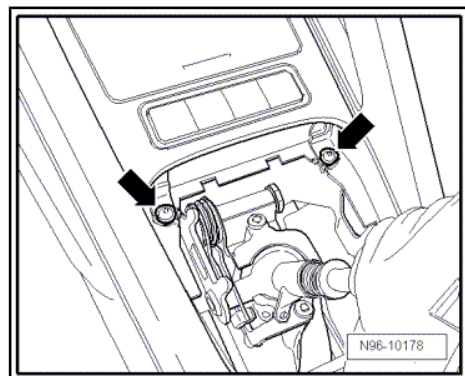


## Removing

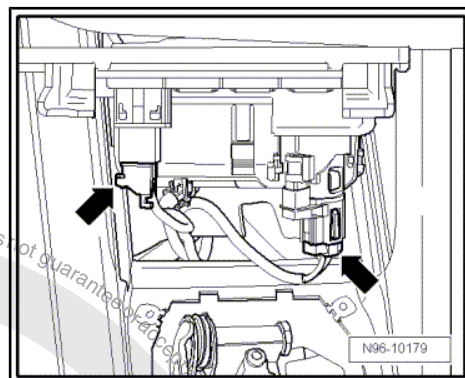
- Carefully pry the selector lever boot out of the center console -arrows-.



- Remove the bolts -arrows-.
- Remove the center console storage compartment.



- Disconnect the connectors -arrows-.

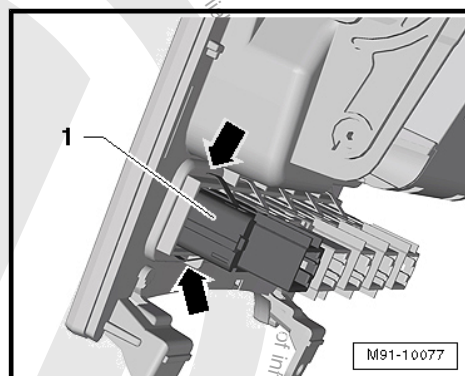


- Squeeze the clips -arrows- on the USB port -1- using -3409- and remove the USB port -1-.

## Installation

Install in reverse order of removal.

**Torque Specifications: 1.5 Nm**





## 5.9 Frequency Filter

⇒ **“5.9.1 FM Frequency Filter In Positive Wire R179”**,  
page 188

⇒ **“5.9.2 FM Frequency Filter In Negative Wire R178”**,  
page 188

### 5.9.1 FM Frequency Filter In Positive Wire - R179-

The frequency filters are clipped to the left and right C-pillars.

#### Removing



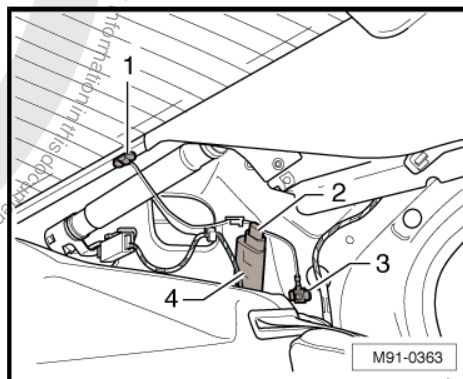
#### Caution

- ◆ **Turn off the ignition and all electrical consumers.**
- ◆ **Remove the key.**

- Remove the left C-pillar trim. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect the connector -2-.
- Remove ground wire -3-.
- Unclip the FM frequency filter in positive wire -4- from the C-pillar.

The positive wire runs inside the wiring harness to the vehicle electrical system control module -J519- . Refer to Wiring diagrams, Troubleshooting & Component locations.

- Disconnect the positive wire.



The wire from the connector -2- to the rear window is soldered to the rear window -1-.

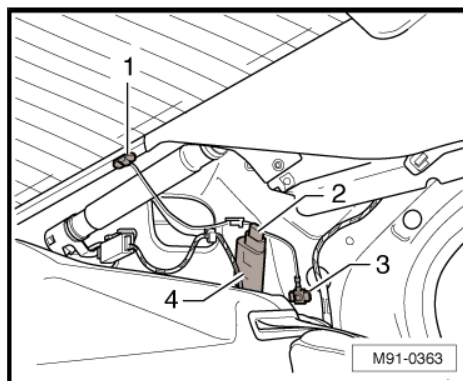
#### Installing

- Connect the FM frequency filter in positive wire to the positive wire in the wiring harness. Use wiring harness repair set -VAS 1978/- .



#### Note

*The positive wire on the new FM frequency filter in positive wire can be shortened.*



Install in reverse order of removal.

**Torque Specifications: 2 Nm**

### 5.9.2 FM Frequency Filter In Negative Wire - R178-

The frequency filters are clipped to the left and right C-pillars.



## Removing



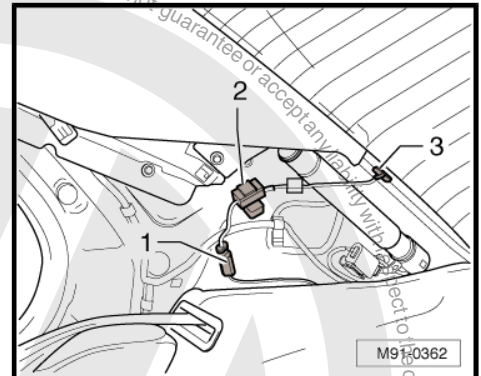
### Caution

- ◆ *Turn off the ignition and all electrical consumers.*
- ◆ *Remove the key.*

- Remove the right C-pillar trim. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect electrical connection -2-.
- Unclip the FM frequency filter in negative wire -1- from the C-pillar.

The negative wire (ground) runs in the wiring harness to the ground point "61". Refer to Wiring diagrams, Troubleshooting & Component locations.

- Disconnect the ground wire.



The wire from the connector -2- to the rear window is soldered to the rear window -3-.

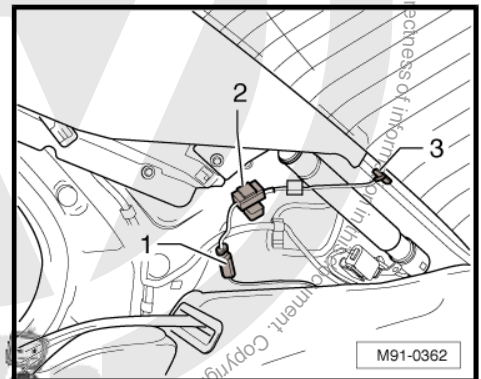
## Installing

- Connect the FM frequency filter in negative wire to the negative wire in the wiring harness. Use the wiring harness repair set -VAS 1978- to do this.



### Note

*The negative wire on the new FM frequency filter in negative wire can be shortened.*



Install in reverse order of removal.

## 5.10 iPod Baseplate -R192- Adapter

In order to adapt the baseplate for different iPod sizes, there is an adapter for the iPod baseplate -R192- .

## Installing

### iPod and iPod Photo:

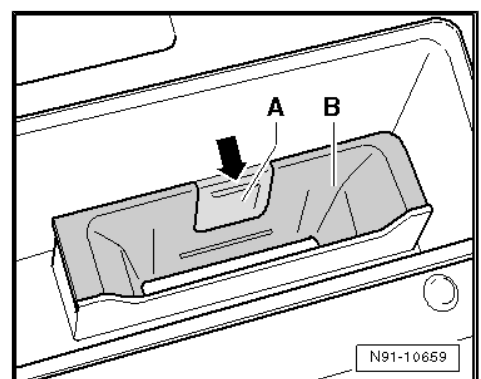
- Push the adapter -A- in the direction of the -arrow- all the way into the adapter -B-.



### Note

*The adapter -A- is available in various thicknesses. To find out which one is needed , refer to the Operating Instructions.*

### iPod Mini:

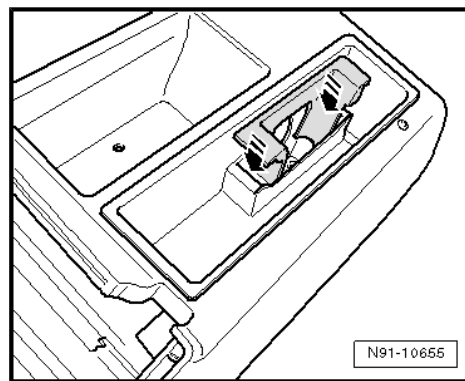




- Push the adapter in the direction of the -arrow- all the way into the mount in the iPod baseplate -R192- .

### Removing

Remove in reverse order of installation.



## 5.11 iPod Baseplate -R192-

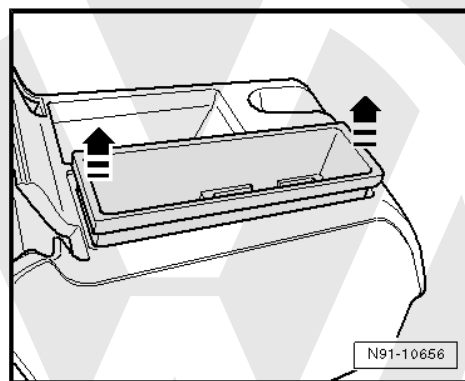
The iPod baseplate is inside the center console.

### Removing

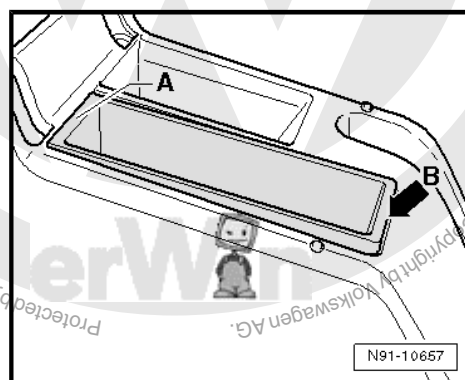
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Open the center armrest.
- Reach into the iPod baseplate and remove it in the direction of the -arrow-.
- Disconnect the connector under the iPod baseplate.

### Installing

- Connect electrical connector.



- Insert the iPod baseplate -R192- -A- into the center console and push it in direction -B- until it locks into place.





## 5.12 Multifunction Steering Wheel Components

⇒ ["5.12.1 Steering Wheel Radio Control Switch, through MY 09", page 191](#)

⇒ ["5.12.2 Steering Wheel Radio Control Switch, from MY 10", page 191](#)

⇒ ["5.12.3 Multifunction Steering Wheel Control Module J453, through MY 09", page 192](#)

### 5.12.1 Steering Wheel Radio Control Switch, through MY 09

Removing and installing the buttons on the right and left sides is identical.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the driver side airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Removal and Installation .
- Disconnect connector -1-.

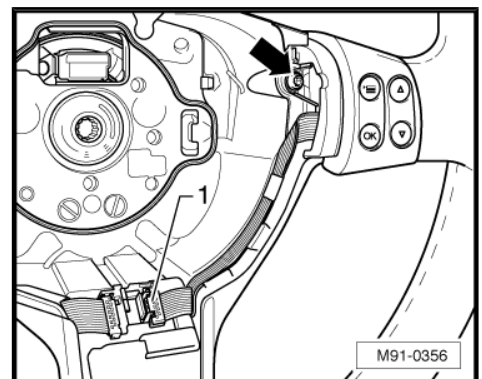
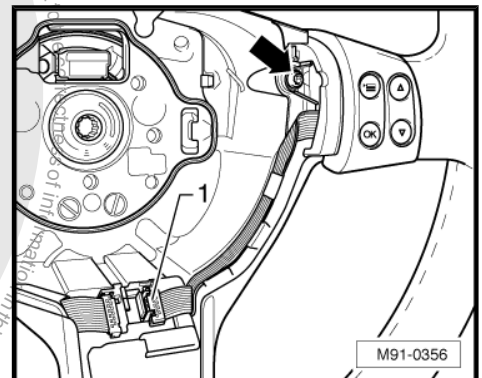
- Remove the screw -arrow-.
- Remove the block of buttons.

#### Installing

Install in reverse order of removal.

- Code the steering column electronic systems control module. Refer to  
⇒ ["4.5 Multifunction Steering Wheel Functions, Adapting ", page 166](#) .

Torque Specifications: 2 Nm



### 5.12.2 Steering Wheel Radio Control Switch, from MY 10

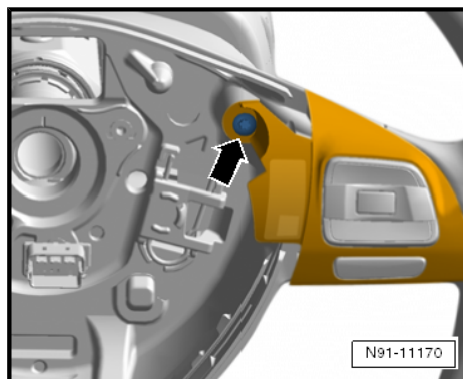
The removal and installation of the Left Multifunction Buttons On Steering Wheel -E440- / Right Multifunction Buttons On Steering Wheel -E441- are performed in the same way.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the driver side airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Removal and Installation .



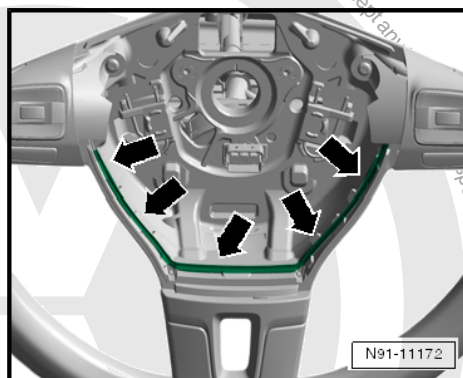
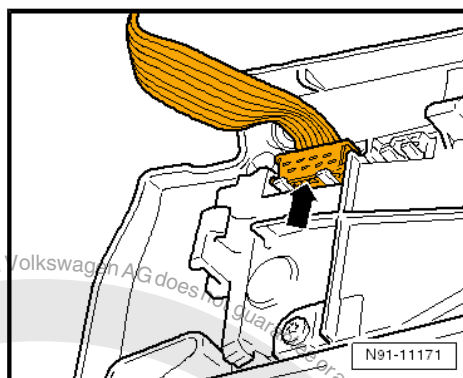
- Remove screw -arrow-.
- Remove the block of buttons.



- Disconnect the connector -arrow- from the button block.

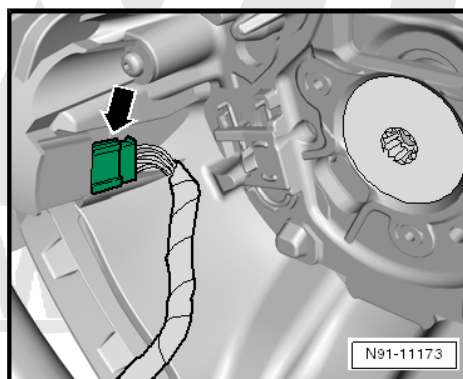
### Installing

Install in reverse order of removal.



### Note

- ♦ *Make sure to route the wires between both blocks of buttons as illustrated -arrows-.*
- ♦ *Make sure the black connector is connected to the left block of buttons -arrow-.*
- Code the steering column electronic systems control module.  
Refer to  
⇒ ["4.5 Multifunction Steering Wheel Functions, Adapting", page 166](#).



Torque Specifications: 2 Nm

## 5.12.3 Multifunction Steering Wheel Control Module -J453- , through MY 09

### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.



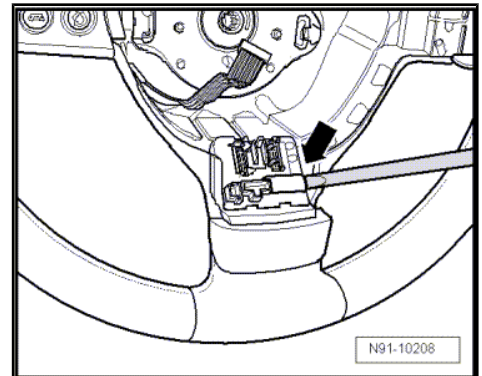


- Remove the driver side airbag. Refer to ➔ Body Interior; Rep. Gr. 69 ; Removal and Installation .
- Disconnect the connector from the multimedia system control module.
- Carefully pry out the multifunction steering wheel control module with a screwdriver -arrow-.

### Installing

Install in reverse order of removal.

- Code the multifunction steering wheel control module. Refer to  
➔ [“4.5 Multifunction Steering Wheel Functions, Adapting”](#),  
[page 166](#) .



## 5.13 Multimedia System Control Module - J650-

➔ [“5.13.1 In Center Console”](#), [page 193](#)

➔ [“5.13.2 In Glove Compartment”](#), [page 194](#)

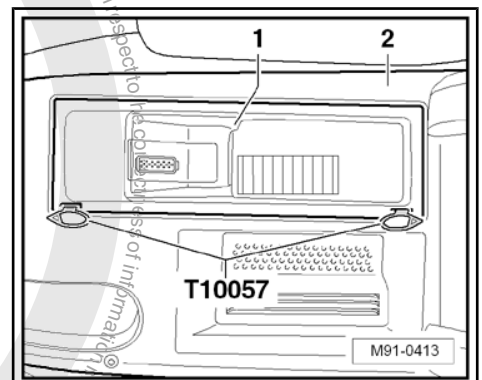
### 5.13.1 In Center Console

#### Special tools and workshop equipment required

- ◆ Radio Removal Tool -T10057-

#### Removal

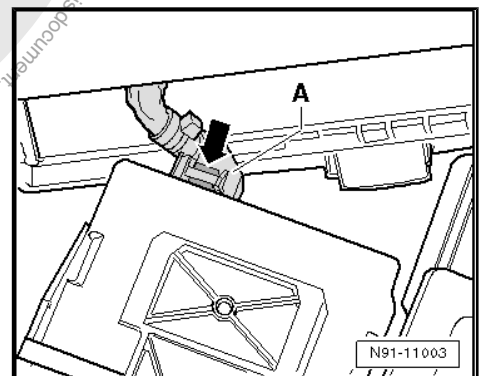
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove any units connected to the multimedia system control module.
- Push the -T10057- into the slots on the left and right sides of the multimedia system control module -1- until they click into place.
- Pull the multimedia system control module -1- upward and out of the center console -2- using the -T10057- .



- Unlock and disconnect the connector -A- -arrow-.
- Press the clips on the multimedia system control module and remove the -T10057- at the same time.

#### Installation

Install in reverse order of removal.





## 5.13.2 In Glove Compartment

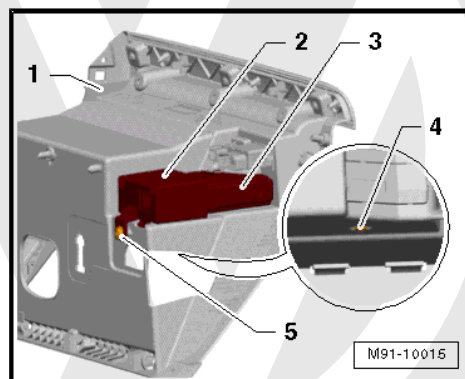
### Removal

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Disconnect any devices connected to the multimedia system control module.
- Remove the glove compartment. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the screw -5- from the connector -2-.
- Remove the screw -4- from the inside.
- Remove the multimedia system control module -3- with the connector -2- from the glove compartment -1-.
- Disconnect the connector -2- from the multimedia system control module -3-.

### Installation

Install in reverse order of removal.

**Torque Specifications: 1.5 Nm**

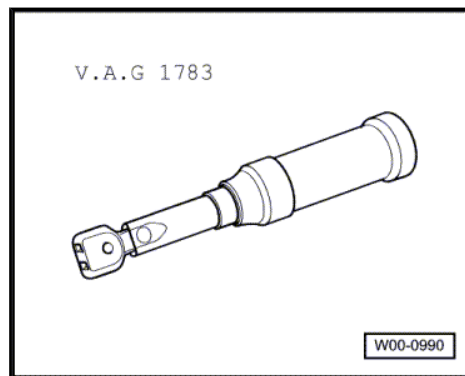


## 5.14 Rearview Camera -R189-

The Rearview Camera -R189- is installed inside the rear lid handle. The Rearview Camera -R189- cannot be removed from the handle button. The handle button must be replaced.

### Special tools and workshop equipment required

- ◆ Torque Wrench 2-10 Nm -V.A.G 1783-



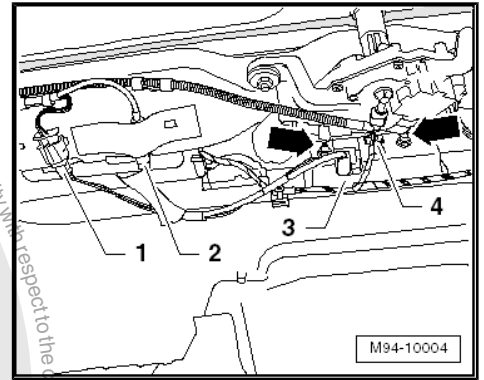
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the rear lid trim panel. Refer to ➤ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Open the wire holder from the wiring harness for the rearview camera -R189- near the connectors and remove both wires.





- Disconnect the connectors -1- and -2-.

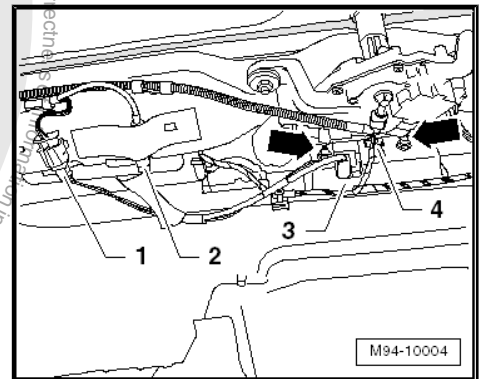


- Remove the nuts -arrows-.
- Disengage the connector -4- and disconnect.
- Remove the button in the handle and the Rearview Camera -R189- -3- from the rear lid.

### Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications. Refer to  
⇒ ["2.12 Rearview Camera System Component Location", page 87](#).
- Fasten the Rearview Camera -R189- wires to a wire holder to prevent rattling.
- After installing, clean the Rearview Camera -R189- lens with lint-free cloth.



## 5.15 Radios

⇒ ["5.15.1 Low Entry", page 195](#)

⇒ ["5.15.2 RCD 210", page 198](#)

⇒ ["5.15.3 RCD 300", page 200](#)

Wagon ⇒ ["5.15.4 RCD 030+", page 202](#)

Wagon ⇒ ["5.15.5 RCD 300+", page 204](#)

⇒ ["5.15.6 RCD 310", page 206](#)

⇒ ["5.15.7 RCD 500", page 208](#)

⇒ ["5.15.8 Premium 7", page 210](#)

⇒ ["5.15.9 Premium 8", page 212](#)

### 5.15.1 Low Entry

Special tools and workshop equipment required

- ◆ Trim Removal Wedge -3409-

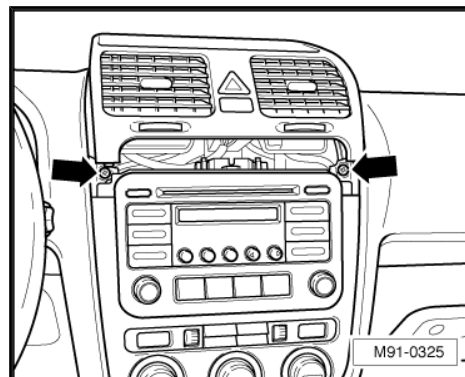


## Note

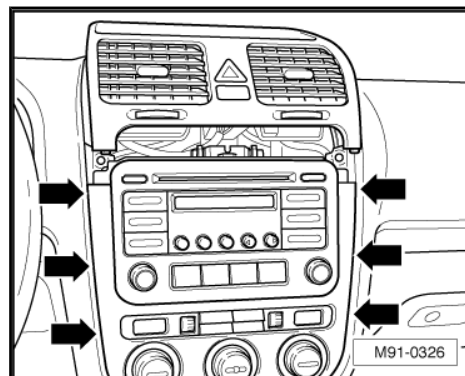
- ◆ The part number for the radio is on a label on the radio housing.
- ◆ Deactivate the anti-theft protection when replacing the radio. Refer to ➤ [page 12](#) . Give the customer the new radio code.
- ◆ If the radio code is not known, you can retrieve it via the known systems. The radio serial number will be needed. It is on a label attached to the side of the radio. The serial number is also stamped in the side of the radio.

## Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the radio, remove it. Refer to the owner's manual.
- Remove the upper cover and vents from the instrument panel. The screws under the center console should now be accessible. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove screws -arrows-.

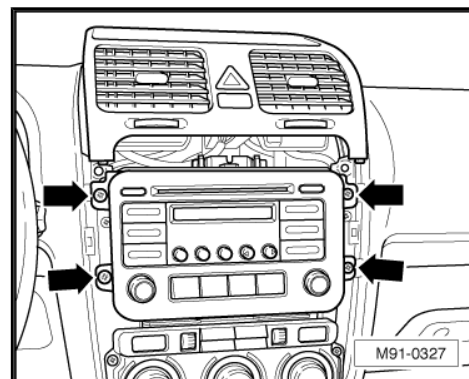


- Remove the center console cover using a -3409- -arrows-.

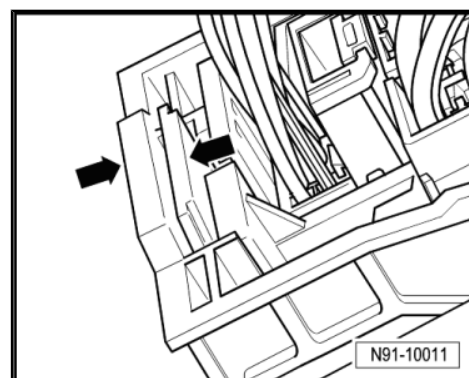




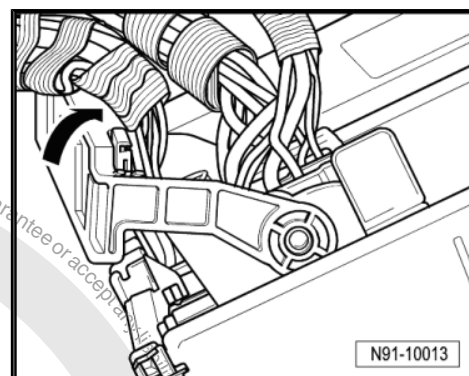
- Remove the screws -arrows- from the radio.
- Pull the radio out just far enough until the connectors on the back are accessible.



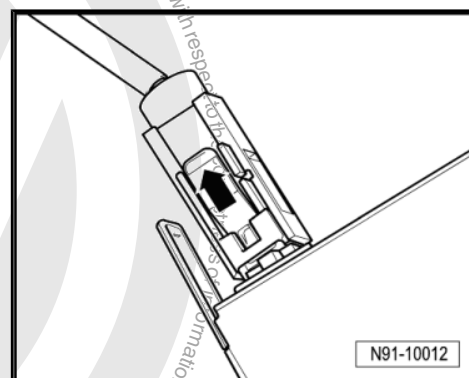
- Squeeze the connector lock in direction of -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Release the antenna connection -arrow- and remove the connector.



### Installing

Install in reverse order of removal. Note the following:



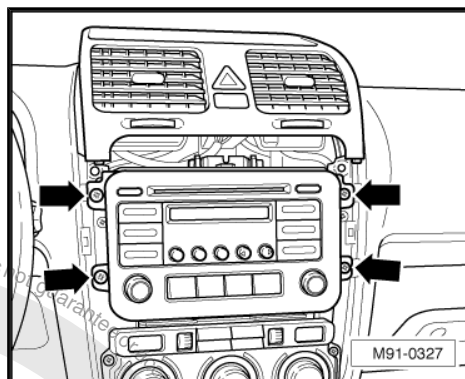
#### Note

*Never push directly on the display or the buttons when inserting the radio.*



- Install the screws -arrows- in the radio.
- Anti-theft coding, deactivating, refer to ➤ [page 12](#) .
- Check the radio coding. Recode again if necessary. Refer to ➤ ["4.3 Low Entry Radio Components, Adapting"](#) , [page 165](#) .

Torque Specifications: 1.5 Nm



## 5.15.2 RCD 210

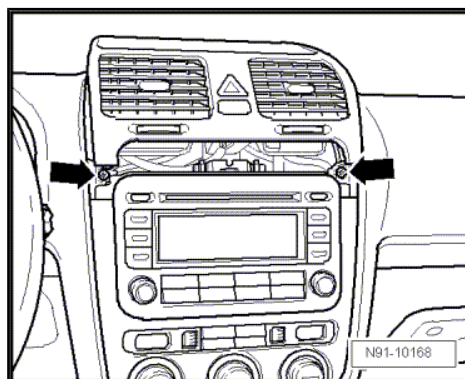


### Note

- ◆ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ◆ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to ➤ [page 14](#) .
- ◆ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.

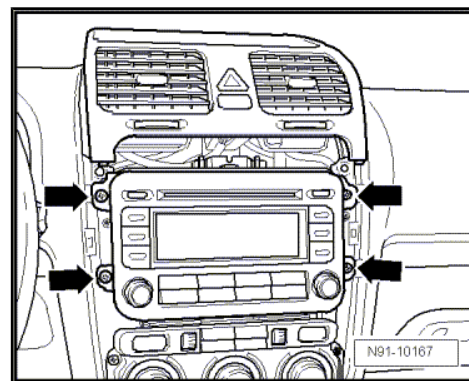
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .

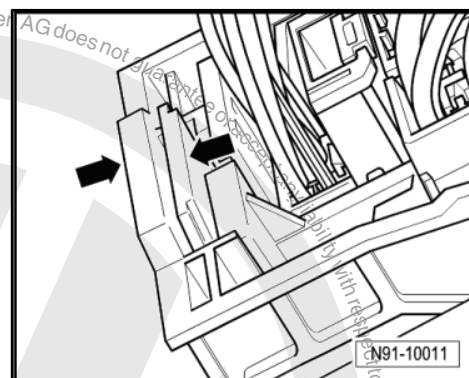




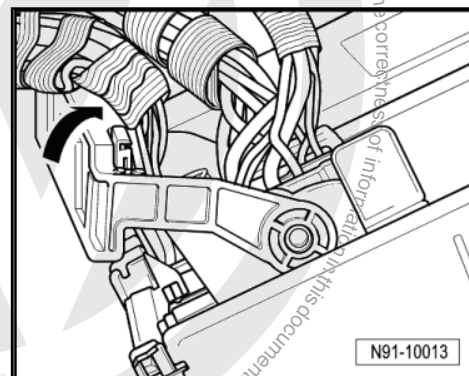
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



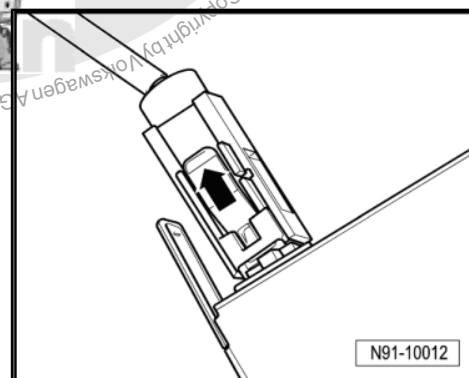
- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Release the antenna connection -arrow- and remove the connector.



### Installing

Install in reverse order of removal. Note the following:



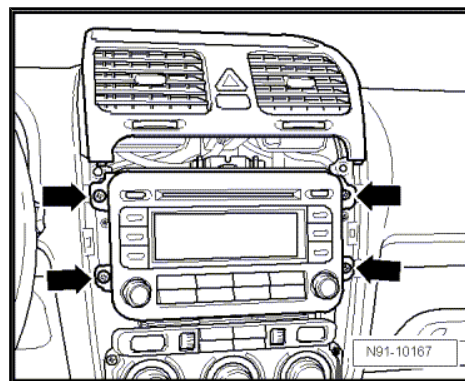
#### Note

*Never push directly on the display or the buttons when inserting the Radio -R- . Doing so could damage the Radio -R- .*



- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to [⇒, page 14](#) .
- Check the Radio -R- coding and code again if necessary. Refer to [⇒ "4.9 RCD 210, Adapting", page 167](#) .

Tightening specification: 1.5 Nm.



### 5.15.3 RCD 300

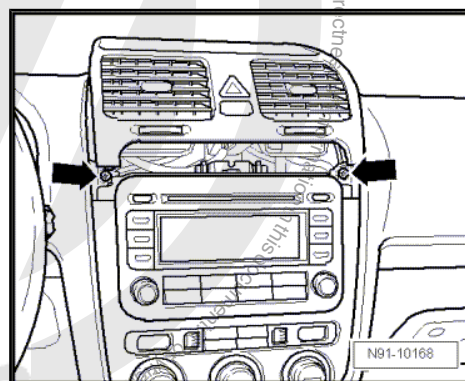


#### Note

- ♦ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ♦ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to [⇒, page 16](#) . Give the customer the new radio code.
- ♦ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.

#### Removing

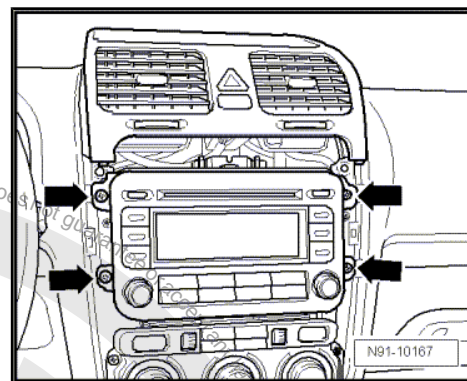
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



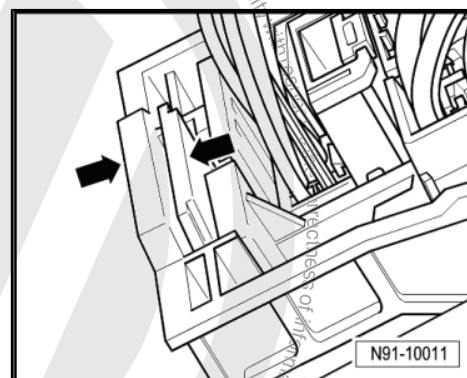




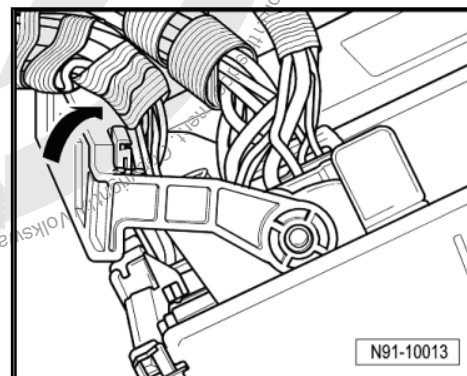
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Unlock the antenna connections -arrows- and disconnect the connectors.

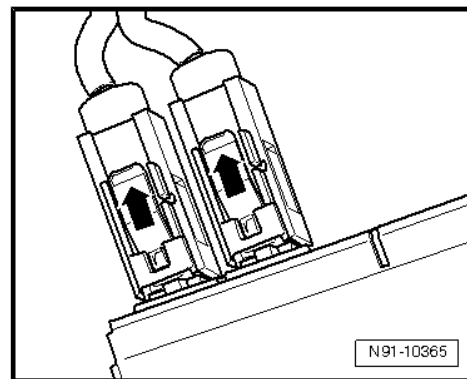
### Installing

Install in reverse order of removal. Note the following:



#### Note

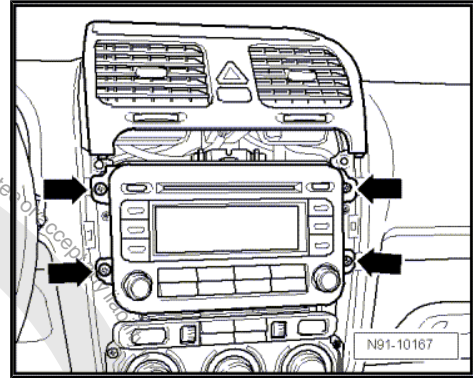
*Never push directly on the display or the buttons when inserting the Radio -R- . Doing so could damage the Radio -R- .*





- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to ➤ , [page 16](#) .
- Check the Radio -R- coding and code again if necessary. Refer to ➤ "4.10 RCD 300, Adapting", [page 168](#) .

Tightening specification: 1.5 Nm.



#### 5.15.4 RCD 030+

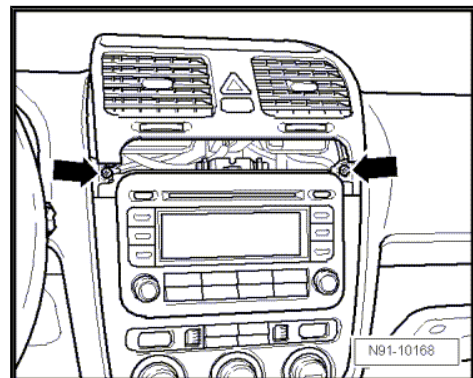


##### Note

- ♦ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ♦ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to ➤ , [page 18](#) . Give the customer the new radio code.
- ♦ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.

##### Removing

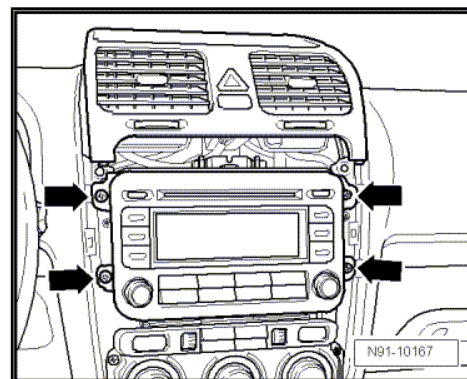
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



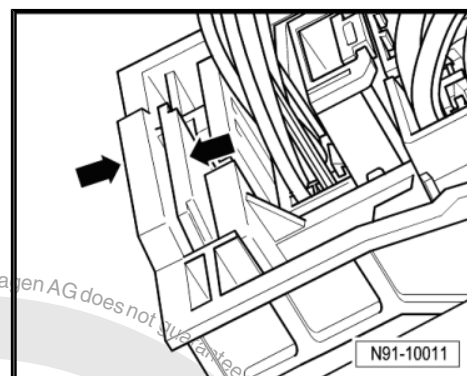




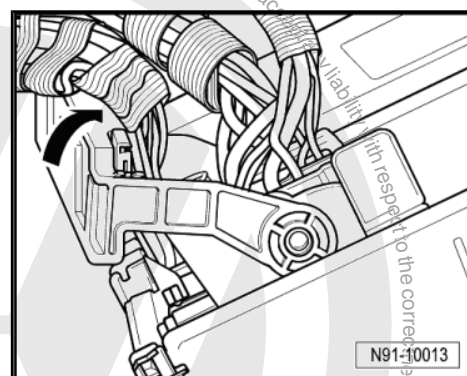
- Remove the bolts -arrows-.
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Release the antenna connection -arrow- and remove the connector.
- Unlock and disconnect the USB connection.

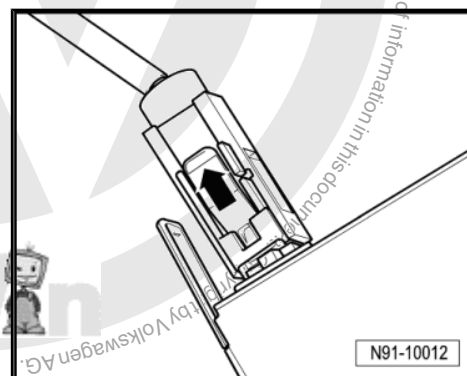
### Installing

Install in reverse order of removal. Note the following:



#### Note

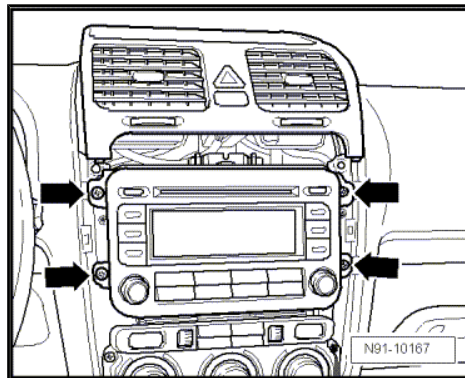
*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*





- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to [⇒, page 18](#) .
- Check the Radio -R- coding and code again if necessary. Refer to [⇒ "4.11 RCD 030+, Adapting", page 168](#) .

Tightening specification: 1.5 Nm.



### 5.15.5 RCD 300+

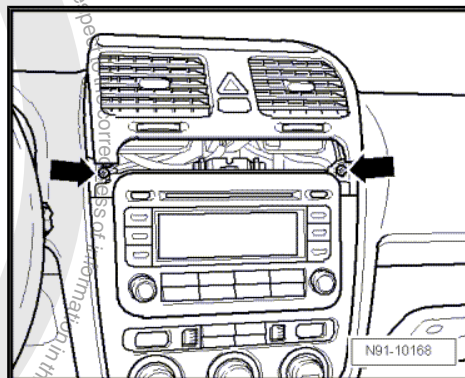


#### Note

- ♦ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ♦ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to [⇒, page 20](#) . Give the customer the new radio code.
- ♦ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.

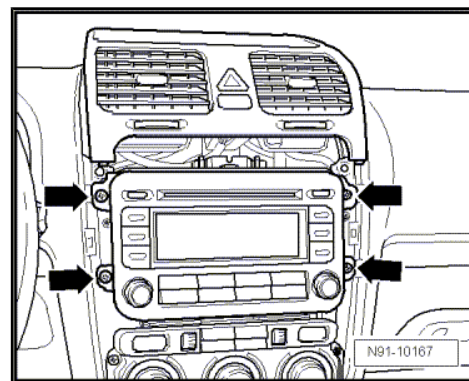
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .

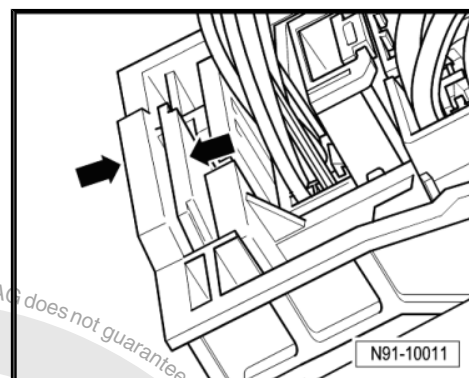




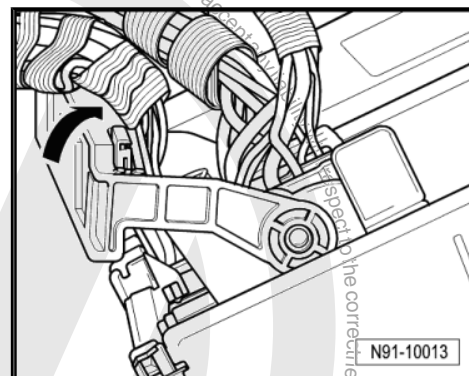
- Remove the bolts -arrows-.
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Release the antenna connection -arrow- and remove the connector.
- Unlock and disconnect the USB connection.

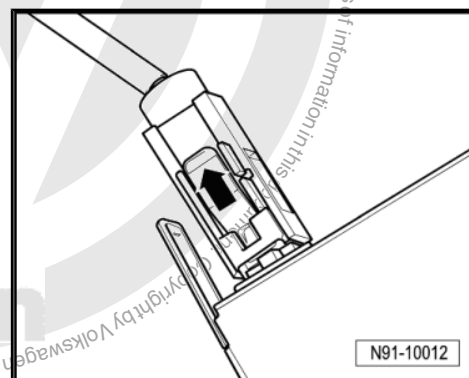
### Installing

Install in reverse order of removal. Note the following:



#### Note

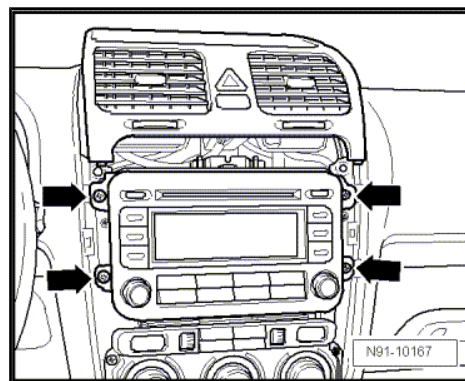
*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*





- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to ➤ [page 20](#) .
- Check the Radio -R- coding and code again if necessary. Refer to ➤ ["4.12 RCD 300+, Adapting", page 168](#) .

Tightening specification: 1.5 Nm.



## 5.15.6 RCD 310

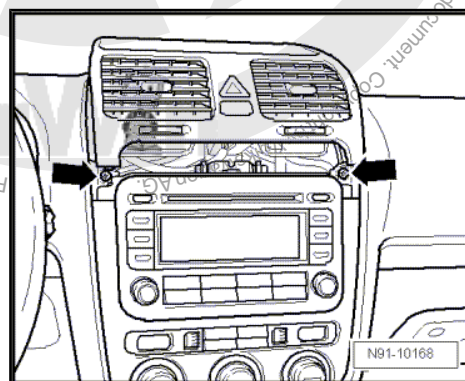


### Note

- ◆ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ◆ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to ➤ [page 22](#) . Give the customer the new radio code.
- ◆ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.

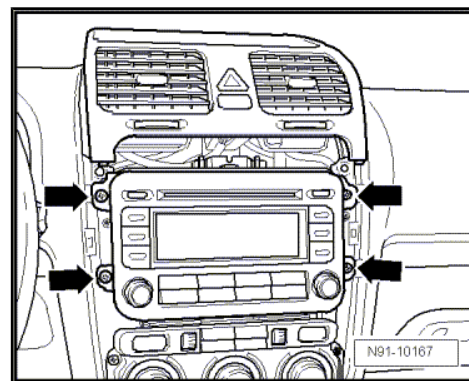
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .

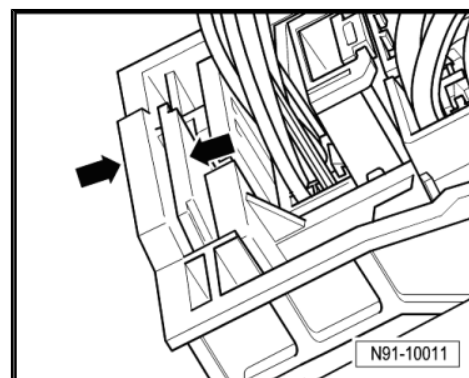




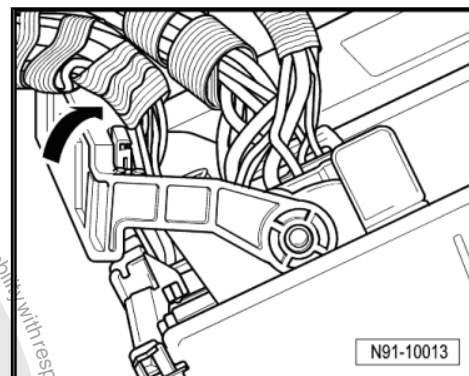
- Remove the bolts -arrows-.
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



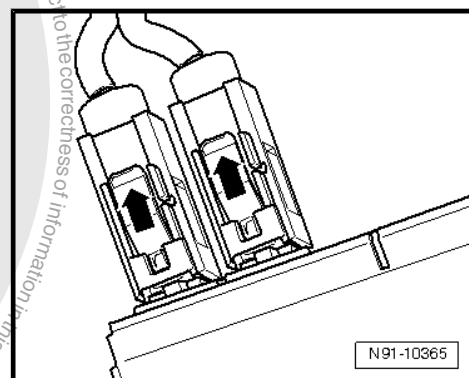
- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Unlock the antenna connections -arrows- and disconnect the connectors.



### Installing

Install in reverse order of removal. Note the following:



#### Note

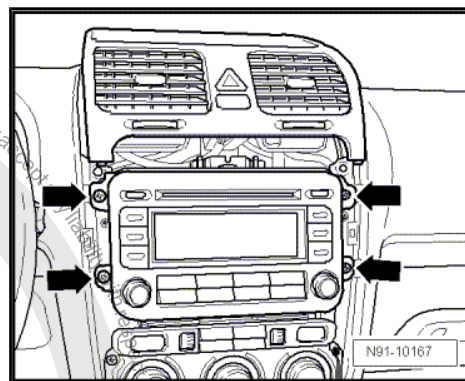
*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*





- Install the screws -arrows- in the Radio -R-.
- Deactivate the electronic anti-theft protection. Refer to ➤ , [page 22](#) .
- Check the Radio -R- coding and code again if necessary. Refer to ➤ "4.13 RCD-310 Entry Components, Adapting" , [page 168](#) .

Tightening specification: 1.5 Nm.



## 5.157 RCD 500

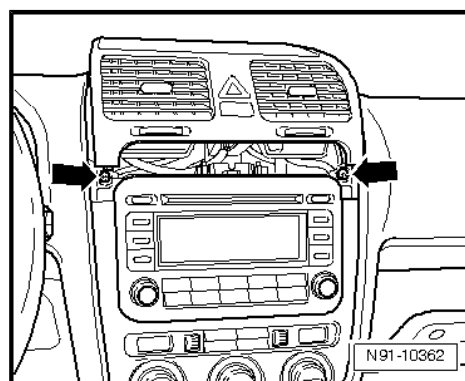


### Note

- ♦ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ♦ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to ➤ , [page 24](#) . Give the customer the new radio code.
- ♦ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.
- ♦ The integrated CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transportation safeguard must be activated, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this. Transport protection, activating/deactivating. Refer to ➤ , [page 25](#) .

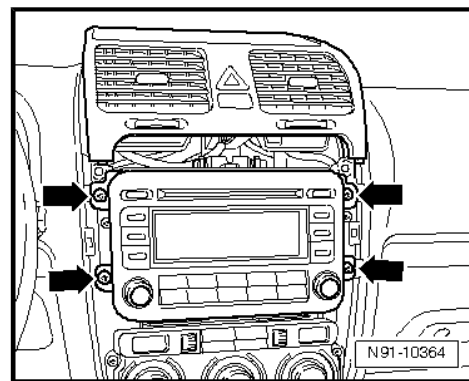
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Activate the transport protection. Refer to ➤ , [page 25](#) .
- Remove the center instrument panel vents. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .

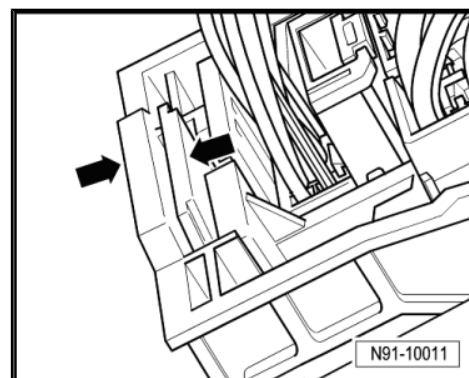




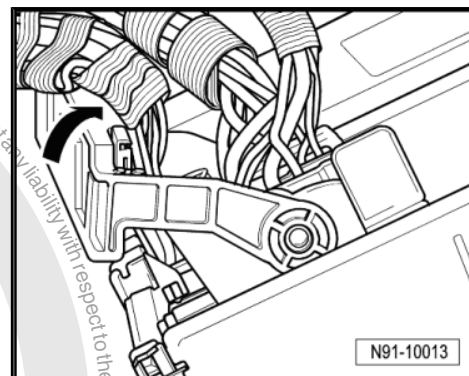
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



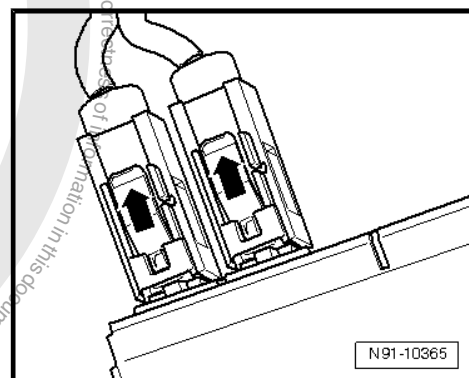
- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Unlock the antenna connections -arrows- and disconnect the connectors.



### Installing

Install in reverse order of removal. Note the following:



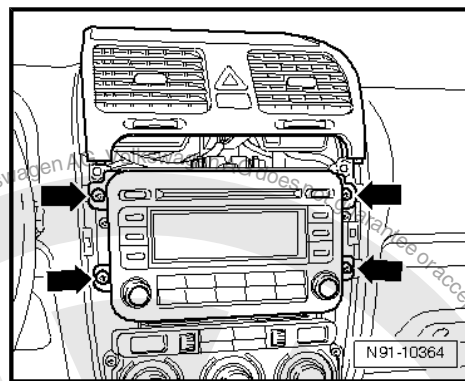
#### Note

*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*



- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 24](#) .
- Deactivate the transport protection. Refer to [⇒ , page 25](#) .
- Check the Radio -R- coding and code again if necessary. Refer to [⇒ “4.15 RCD 500, Adapting”, page 169](#) .

Tightening specification: 1.5 Nm.



## 5.15.8 Premium 7

### Special tools and workshop equipment required

- ♦ Trim Removal Wedge -3409-

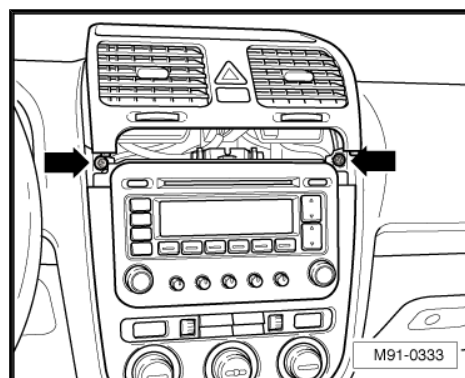


#### Note

- ♦ *The part number for the radio is on a label on the radio housing.*
- ♦ *Always deactivate the electronic anti-theft protection when replacing the radio. Refer to [⇒ page 27](#) . Give the customer the new radio code.*
- ♦ *If the radio code is not known, you can retrieve it via the known systems. The radio serial number will be needed. It is on a label attached to the side of the radio. The serial number is also stamped in the side of the radio.*

### Removing

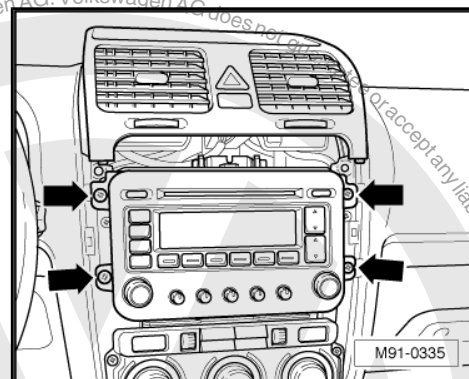
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the radio, remove it. Refer to the owner's manual.
- Remove the vents from center of the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove screws -arrows-.
- Remove the trim from center of the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



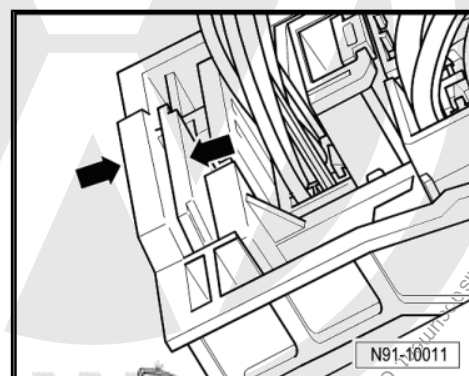




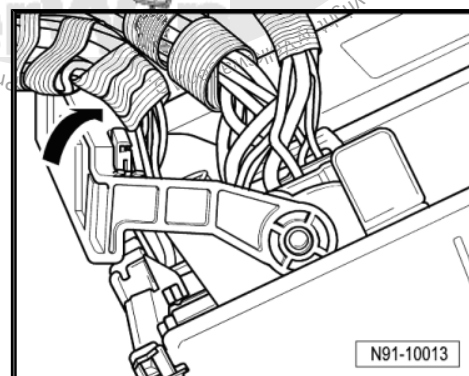
- Remove the screws -arrows- from the radio.
- Pull the radio out just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Unlock the antenna connections -arrows- and disconnect the connectors.

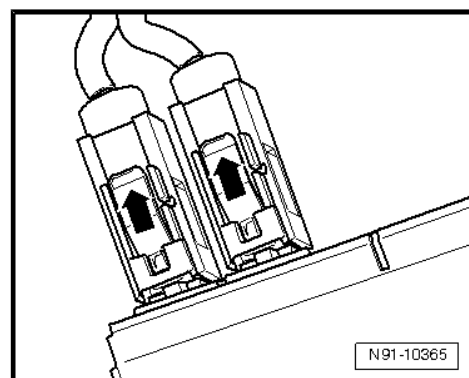
### Installing

Install in reverse order of removal. Note the following:



#### Note

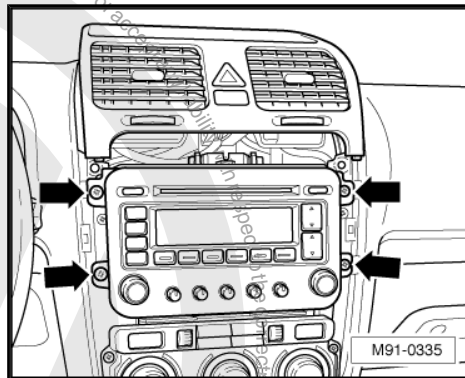
*Never push directly on the display or the buttons when inserting the radio.*





- Install the screws -arrows- in the radio.
- Deactivate the electronic anti-theft coding. Refer to [⇒ page 27](#) .
- Check the coding for the radio. Code it again if necessary. Refer to [⇒ "4.8 Premium 7 Components, Adapting", page 167](#) .

**Torque Specifications: 1.5 Nm**



### 5.15.9 Premium 8

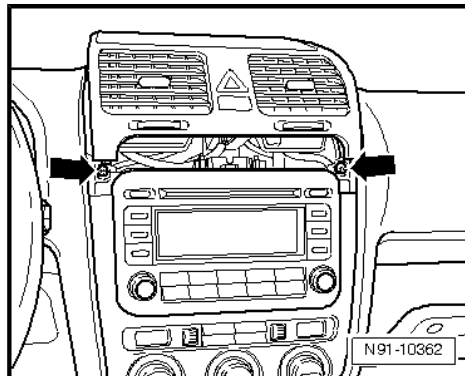


#### Note

- ◆ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ◆ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to [⇒ , page 31](#) .
- ◆ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.
- ◆ The integrated CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transportation safeguard must be activated, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this. Transport protection, activating/deactivating. Refer to [⇒ page 30](#) .

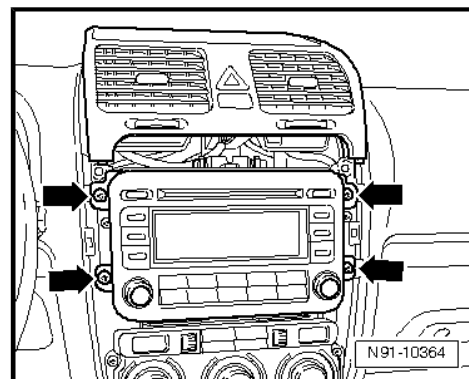
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Activate the transport protection. Refer to [⇒ page 30](#) .
- Remove the center instrument panel vents. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

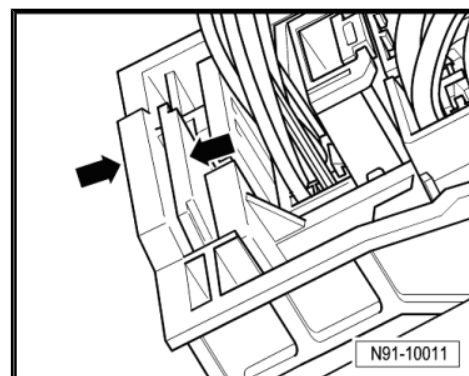




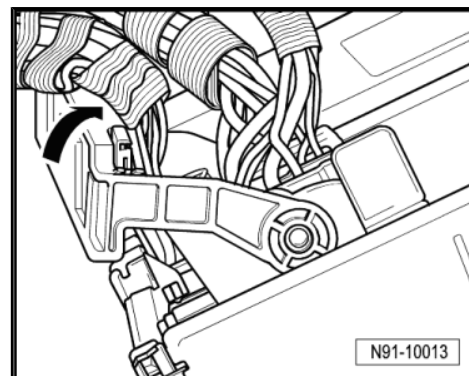
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



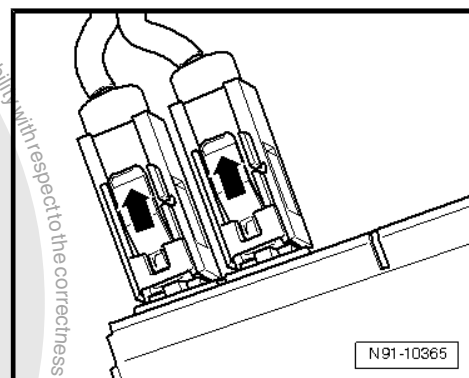
- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.



- Unlock the antenna connections -arrows- and disconnect the connectors.



### Installing

Install in reverse order of removal. Note the following:



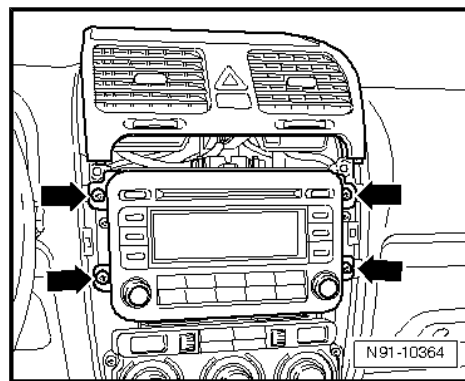
#### Note

*Never push directly on the display or the buttons when inserting the Radio -R- . Doing so could damage the Radio -R- .*



- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 31](#) .
- Deactivate the transport protection. Refer to [⇒ page 30](#) .
- Check the Radio -R- coding and code again if necessary. Refer to [⇒ “4.14 Premium 8 Components, Adapting” , page 169](#) .

Tightening specification: 1.5 Nm.



## 5.16 Radio/Navigation Display Control Module -J503-

[⇒ “5.16.1 RCD 510” , page 214](#)

Wagon [⇒ “5.16.2 RCD 510+” , page 216](#)

[⇒ “5.16.3 RNS 300” , page 218](#)

[⇒ “5.16.4 RNS 310” , page 220](#)

Wagon [⇒ “5.16.5 RNS 315” , page 222](#)

Wagon [⇒ “5.16.6 RNS 315+” , page 224](#) .

[⇒ “5.16.7 RNS-MFD 2 DVD” , page 226](#)

[⇒ “5.16.8 RNS 510” , page 228](#)

### 5.16.1 RCD 510



#### Note

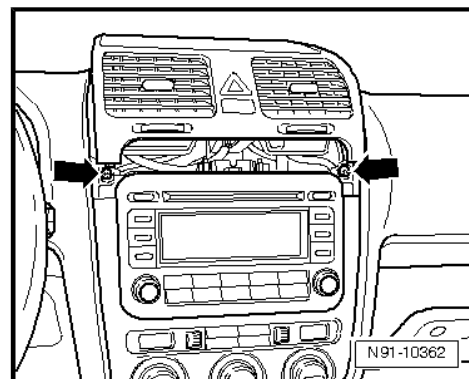
- ◆ The part number for the Radio -R- is located on a label on the Radio -R- housing.
- ◆ Always deactivate the electronic anti-theft protection when replacing the Radio -R- . Refer to [⇒ , page 34](#) . Give the customer the new radio code.
- ◆ If the radio code is not known, it can be retrieved via the known systems. The Radio -R- serial number is needed. It is on a sticker on the side of the Radio -R- housing. The serial number is also stamped into the side of the Radio -R- itself.
- ◆ The integrated CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transportation safeguard must be activated, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this. Transport protection, activating/deactivating. Refer to [⇒ , page 35](#) .

#### Removing

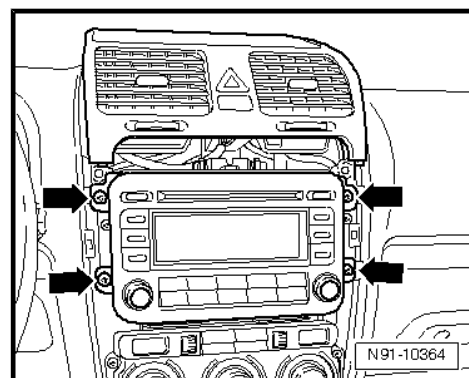
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Activate the transport protection. Refer to [⇒ , page 35](#) .
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



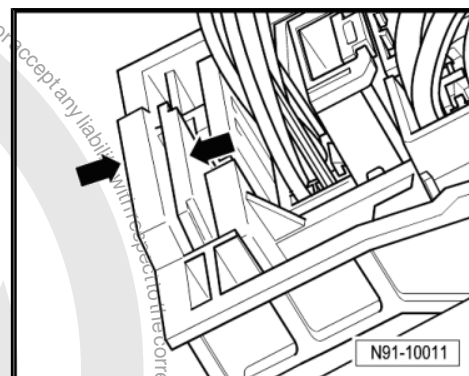
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



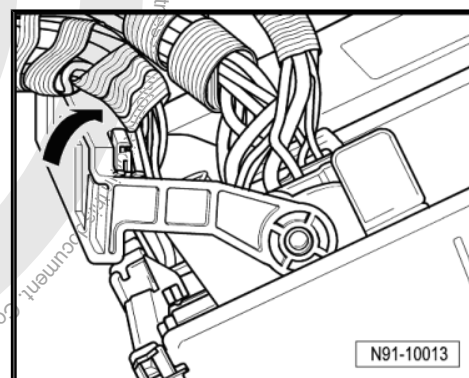
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.

### Installing

Install in reverse order of removal. Note the following:

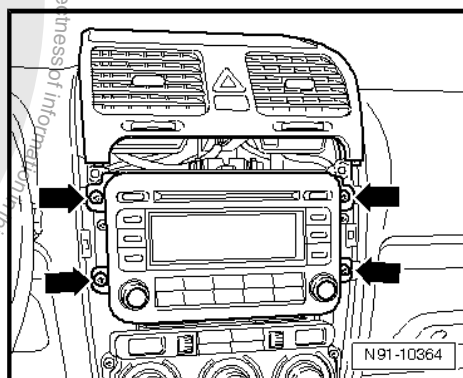
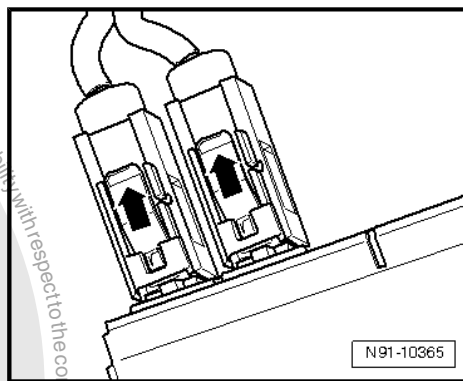


#### Note

*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*

- Install the screws -arrows- in the Radio -R- .
- Deactivate the electronic anti-theft protection. Refer to ➤ , [page 34](#) .
- Deactivate the transport protection. Refer to ➤ , [page 35](#) .
- Check the Radio -R- coding and code again if necessary. Refer to ➤ “[4.20 RCD 510 Functions, Adapting](#)”, [page 170](#) .

Tightening specification: 1.5 Nm.



## 5.16.2 RCD 510+



#### Note

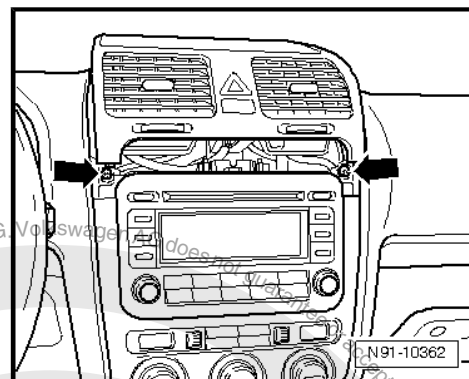
- ♦ *The part number for the Radio -R- is located on a label on the Radio -R- housing.*
- ♦ *Always deactivate the electronic anti-theft protection when replacing the Radio -R-. Refer to ➤ , [page 37](#) . Give the customer the new radio code.*
- ♦ *The integrated CD changer has a transport lock, which must be deactivated when a new Radio -R- is installed. Likewise, the transportation safeguard must be activated, before a removed Radio -R- can be shipped. The Radio -R- must be connected to a voltage supply when doing this. Transport protection, activating/deactivating. Refer to ➤ , [page 38](#) .*

### Removing

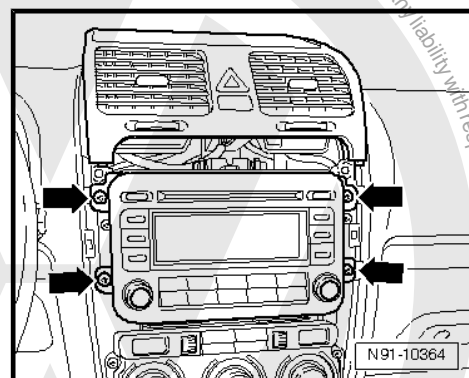
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Activate the transport protection. Refer to ➤ , [page 38](#) .
- Remove the center instrument panel vents. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



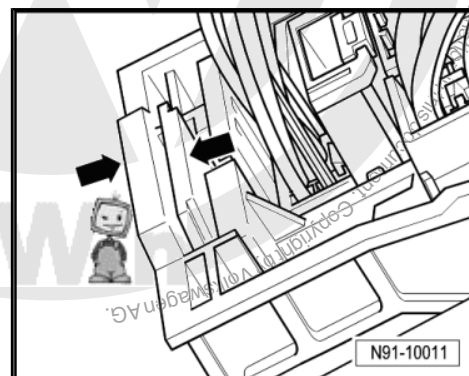
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



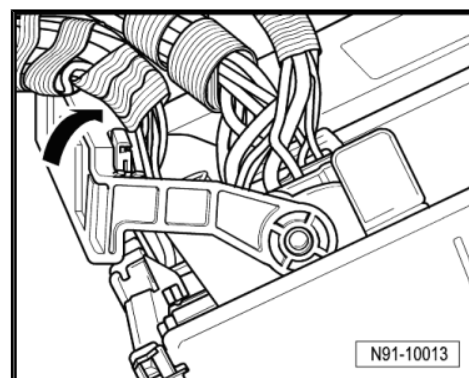
- Remove the screws -arrows- from the Radio -R- .
- Pull the Radio -R- out of the slot just far enough until the connectors on the back of the Radio -R- are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.







- Unlock the antenna connections -arrows- and disconnect the connectors.
- Unlock and disconnect the USB connection.

### Installing

Install in reverse order of removal. Note the following:

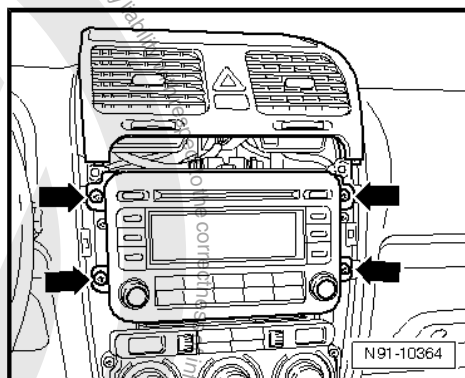
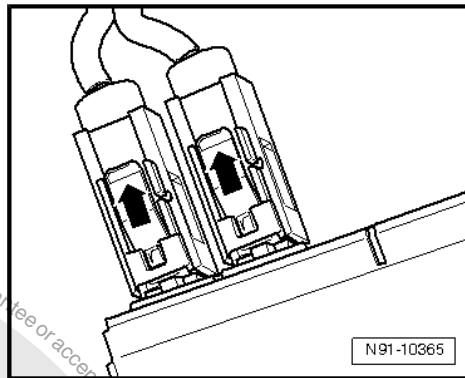


#### Note

*Never push directly on the display or the buttons when inserting the Radio -R-. Doing so could damage the Radio -R-.*

- Install the screws -arrows- in the Radio -R-.
- Deactivate the electronic anti-theft protection. Refer to [⇒, page 37](#).
- Deactivate the transport protection. Refer to [⇒, page 38](#).
- Check the Radio -R- coding and code again if necessary. Refer to [⇒ 4.22 RCD 510+, Adapting, page 171](#).

**Tightening specification: 1.5 Nm.**



## 5.16.3 RNS 300



#### Note

- ◆ Replacement part number for RNS (Radio Navigation System) is located on a sticker on the radio housing.
- ◆ Always deactivate the electronic anti-theft protection when replacing the RNS. Refer to [⇒, page 39](#). Give the customer the new radio code.
- ◆ If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio Navigation System) itself.
- ◆ If an RNS (Radio Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio Navigation System) does not match the vehicle.

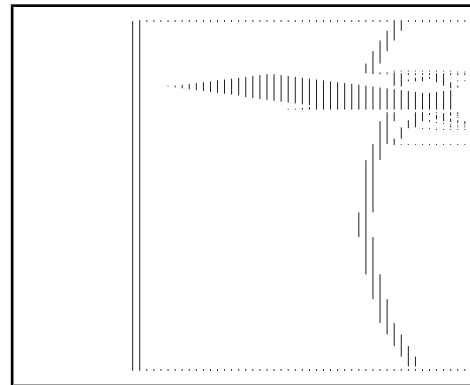
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation.

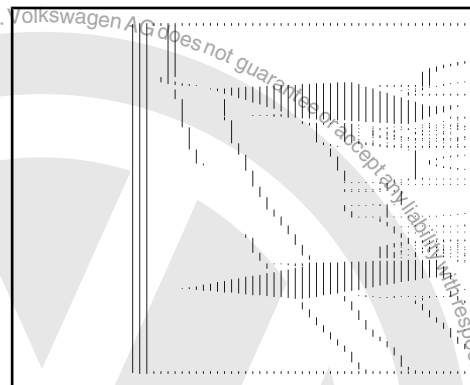




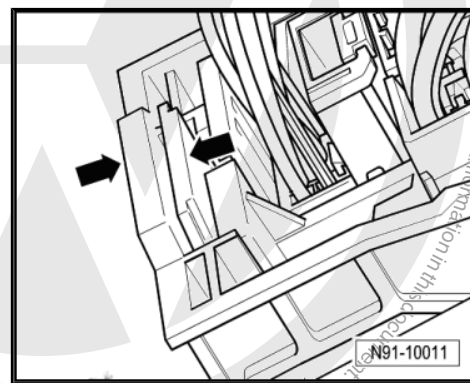
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



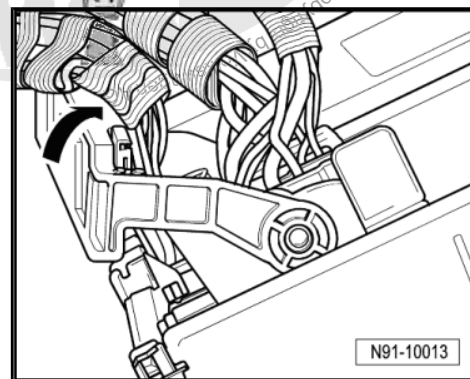
- Remove the bolts -arrows-.
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Release the antenna connections -1- and -2- and disconnect the connectors.

### Installing

Install in reverse order of removal. Note the following:

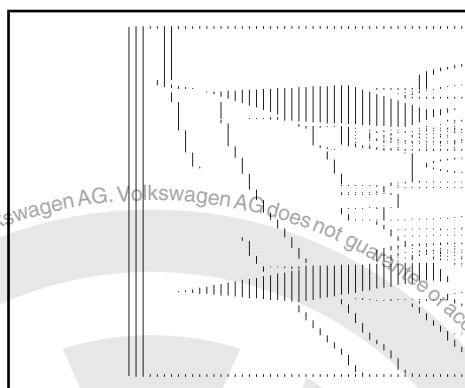
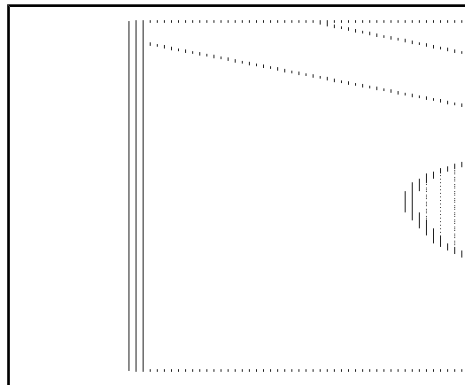


#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*

- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 39](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to [⇒ "4.16 RNS 300, Adapting", page 169](#) .

Tightening specification: 1.5 Nm.



## 5.16.4 RNS 310



#### Note

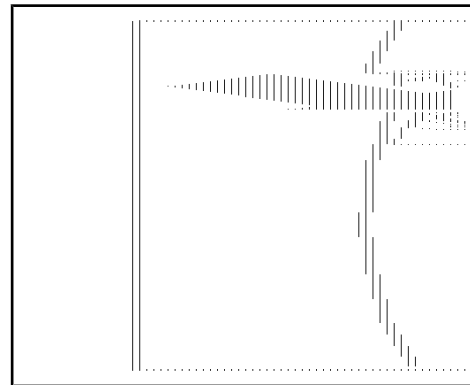
- ◆ *Replacement part number for RNS (Radio/Navigation System) is located on a sticker on the radio housing.*
- ◆ *Always deactivate the electronic anti-theft protection when replacing the RNS. Refer to [⇒ , page 42](#) . Give the customer the new radio code.*
- ◆ *If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio/Navigation System) itself.*
- ◆ *If an RNS (Radio/Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio/Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio/Navigation System) does not match the vehicle.*

### Removing

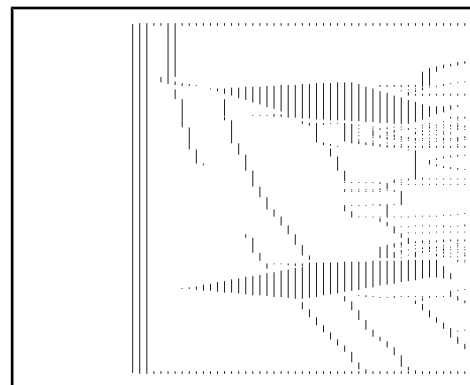
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



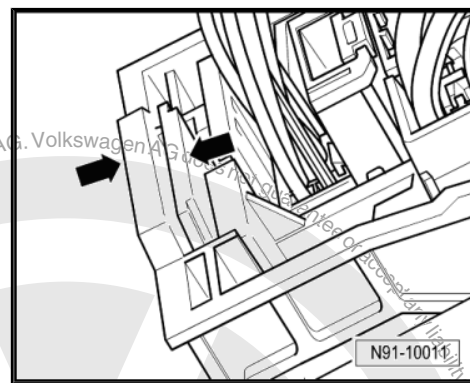
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



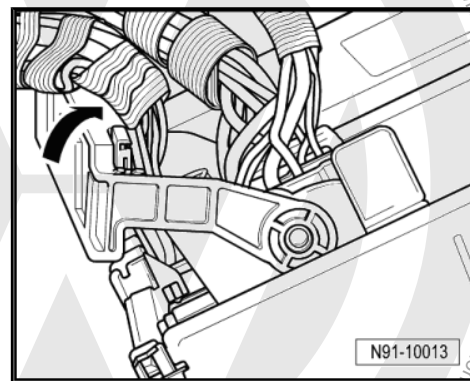
- Remove the bolts -arrows-.
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.

### Installing

Install in reverse order of removal. Note the following:

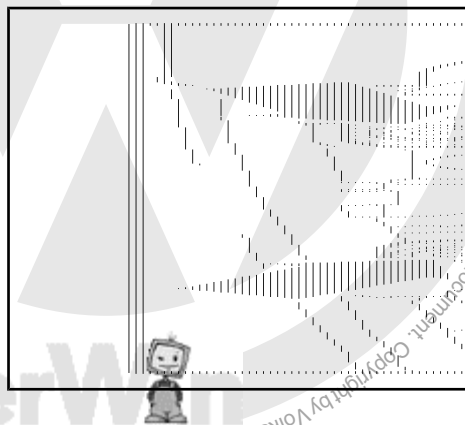
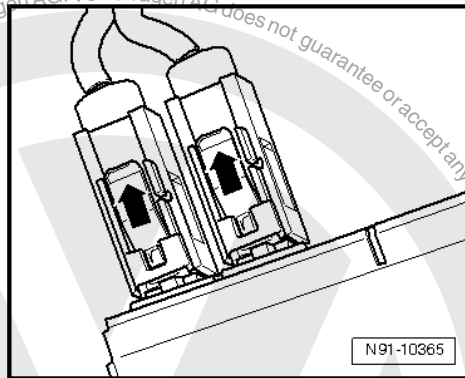


#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*

- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 42](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to [⇒ "4.17 RNS 310, Adapting", page 170](#) .

Tightening specification: 1.5 Nm.



## 5.16.5 RNS 315



#### Note

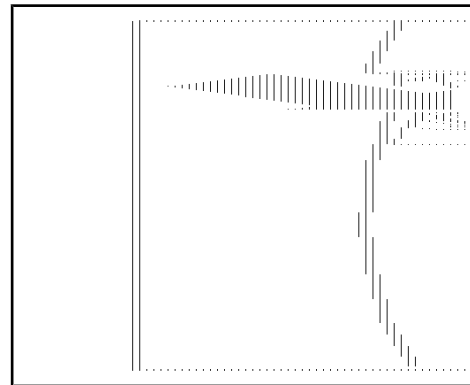
- ◆ *Replacement part number for RNS (Radio Navigation System) is located on a sticker on the radio housing.*
- ◆ *Always deactivate the electronic anti-theft protection when replacing the RNS. Refer to [⇒ , page 46](#) . Give the customer the new radio code.*
- ◆ *If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio Navigation System) itself.*
- ◆ *If an RNS (Radio Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio Navigation System) does not match the vehicle.*

### Removing

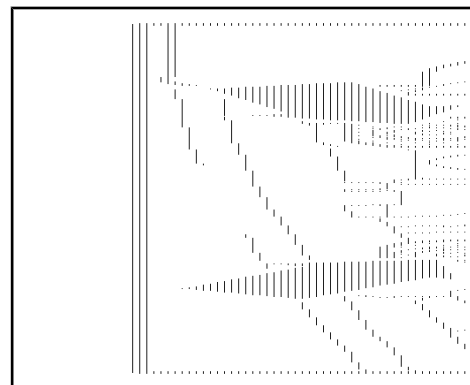
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



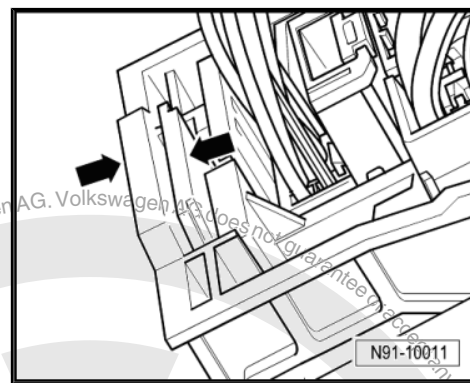
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



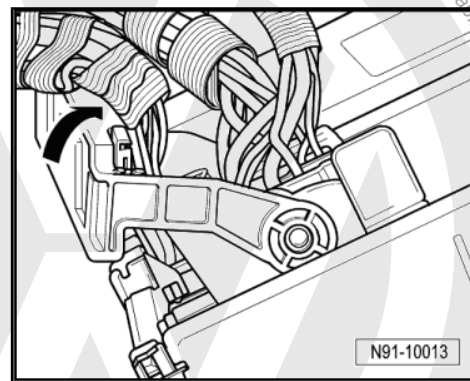
- Remove the bolts -arrows-.
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.

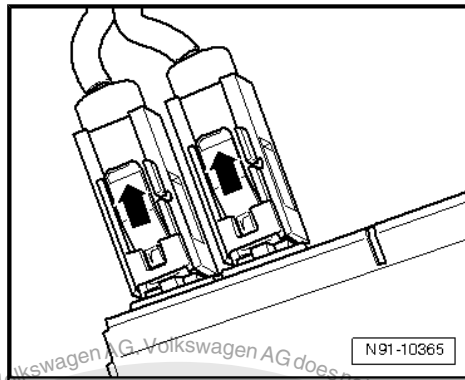
### Installing

Install in reverse order of removal. Note the following:



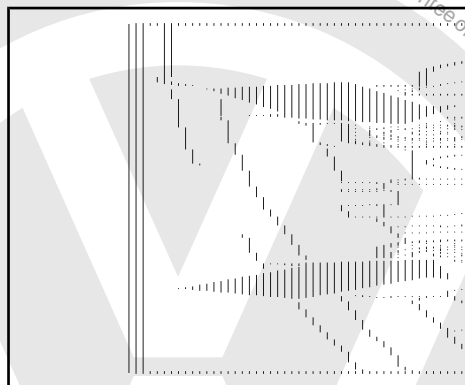
#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*



- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ page 46](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to [⇒ "4.17 RNS 310, Adapting", page 170](#) .

**Tightening specification: 1.5 Nm.**



## 5.16.6 RNS 315+



#### Note

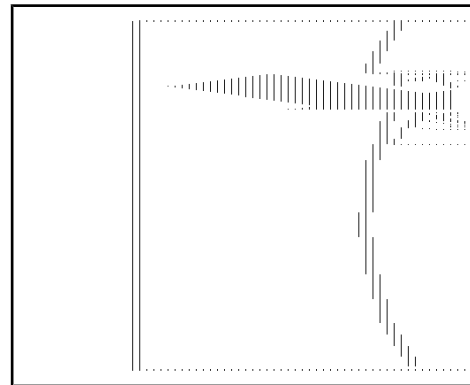
- ◆ *Replacement part number for RNS (Radio Navigation System) is located on a sticker on the radio housing.*
- ◆ *Always deactivate the electronic anti-theft protection when replacing the RNS. Refer to [⇒ , page 48](#) . Give the customer the new radio code.*
- ◆ *If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio Navigation System) itself.*
- ◆ *If an RNS (Radio Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio Navigation System) does not match the vehicle.*

### Removing

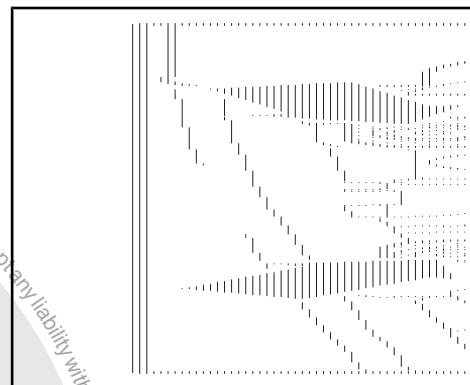
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



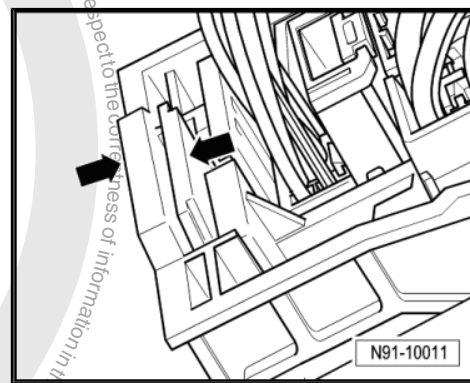
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



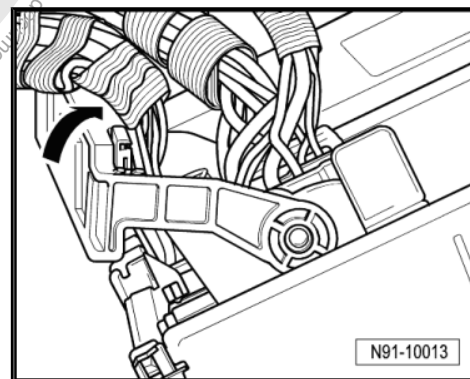
- Remove the bolts -arrows-.
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.
- Unlock and disconnect the USB connection.

### Installing

Install in reverse order of removal. Note the following:

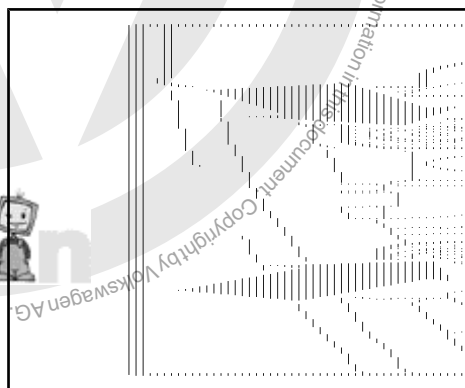
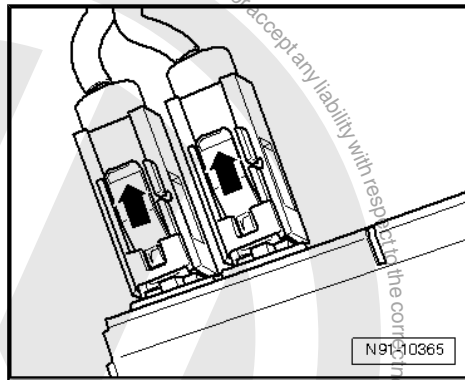


#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*

- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503-
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 48](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to [⇒ "4.19 RNS 315+, Adapting", page 170](#) .

Tightening specification: 1.5 Nm.



## 5.16.7 RNS-MFD 2 DVD



#### Note

- ♦ *Replacement part number for RNS (Radio Navigation System) is located on a sticker on the radio housing.*
- ♦ *Always deactivate the anti-theft code when replacing the RNS (Radio Navigation System). Refer to [⇒ , page 51](#) . Give the customer the new radio code.*
- ♦ *If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio Navigation System) itself.*
- ♦ *If an RNS (Radio Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio Navigation System) does not match the vehicle.*

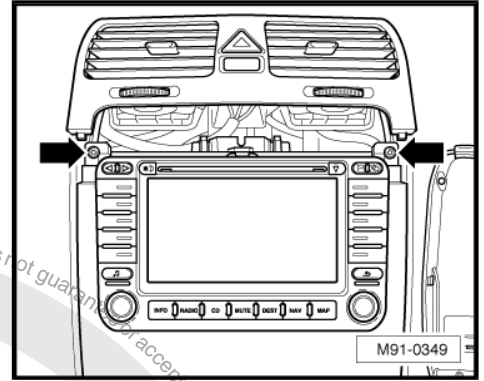
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to [⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .

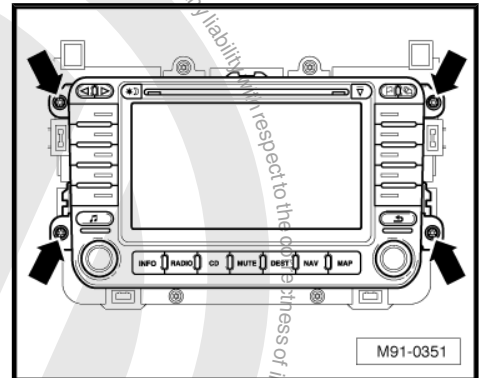




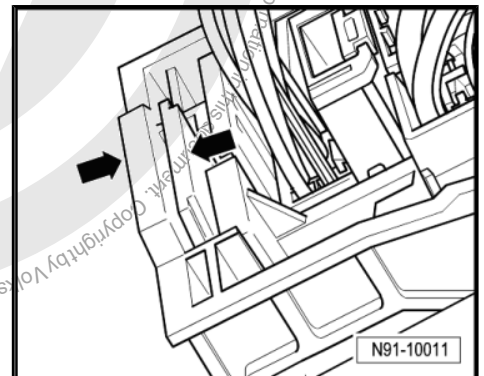
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



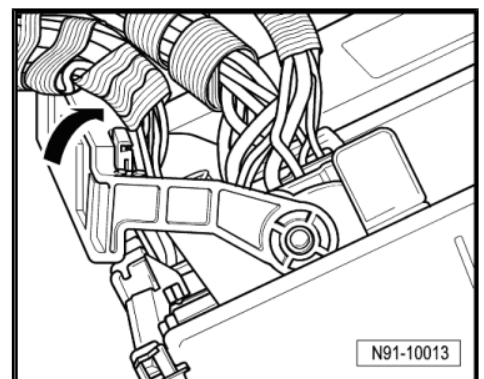
- Remove the screws -arrows- from the Radio/Navigation Display Unit Control Module -J503- .
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.

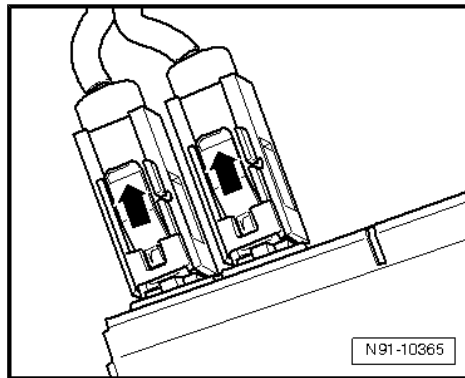
### Installing

Install in reverse order of removal. Note the following:



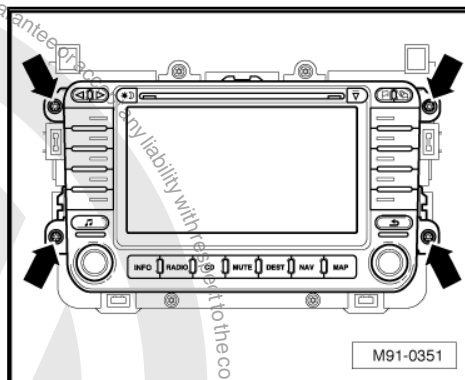
#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*



- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503- .
- Deactivate the electronic anti-theft protection. Refer to ➔ [page 51](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to ➔ ["4.21 RNS MFD 2 DVD, Adapting", page 171](#) .

**Tightening specification: 1.5 Nm.**



## 5.16.8 RNS 510



#### Note

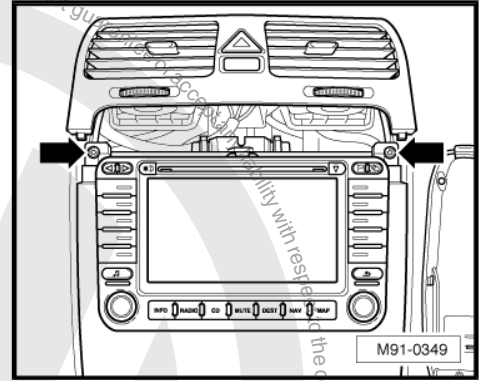
- ◆ *Replacement part number for RNS (Radio Navigation System) is located on a sticker on the radio housing.*
- ◆ *Always deactivate the electronic anti-theft protection when replacing the RNS. Refer to ➔ [page 55](#) . Give the customer the new radio code.*
- ◆ *If the radio code is not known, it can be retrieved via the known systems. The RNS serial number is needed. It is on a sticker on the side of the RNS housing. The serial number is also stamped into the side of the RNS (Radio Navigation System) itself.*
- ◆ *If an RNS (Radio Navigation System) from one vehicle is to be installed in another vehicle, make sure the RNS (Radio Navigation System) from both vehicles have the same replacement part number. Otherwise the navigation system will malfunction because rotation angle sensor setting in the RNS (Radio Navigation System) does not match the vehicle.*

### Removing

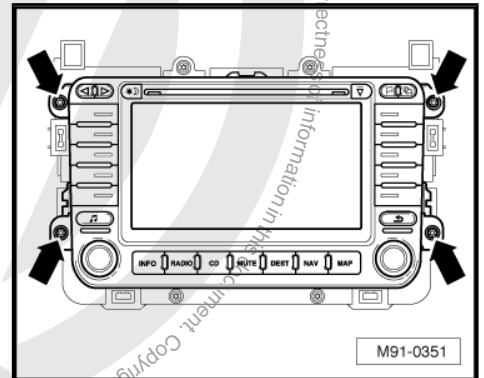
- Switch off the ignition and all electrical consumers and remove the ignition key.
- If there is a CD still in the player, remove it. Refer to the Owner's Manual.
- Remove the center instrument panel vents. Refer to ➔ [Body Interior; Rep. Gr. 68 ; Removal and Installation](#) .



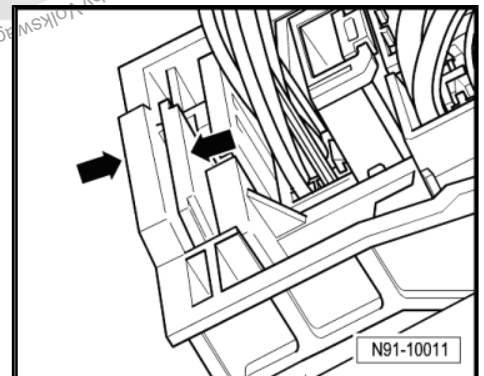
- Remove the bolts -arrows-.
- Remove the center instrument panel trim. Refer to ➤ Body Interior; Rep. Gr. 68 ; Removal and Installation .



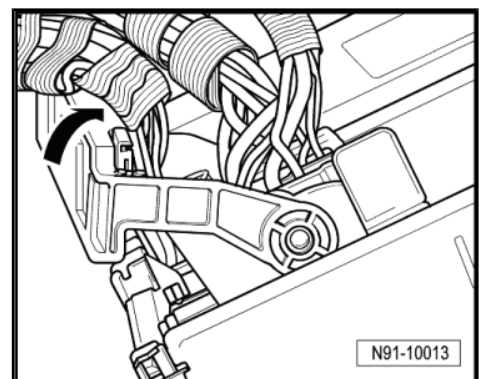
- Remove the screws -arrows- from the Radio/Navigation Display Unit Control Module -J503- .
- Pull out the Radio/Navigation Display Unit Control Module - J503- just far enough until the connectors on the back are accessible.



- Squeeze the connector lock in direction of the -arrows-.



- Move the locking bracket in the direction of the -arrow- and remove the connector.





- Unlock the antenna connections -arrows- and disconnect the connectors.

### Installing

Install in reverse order of removal. Note the following:

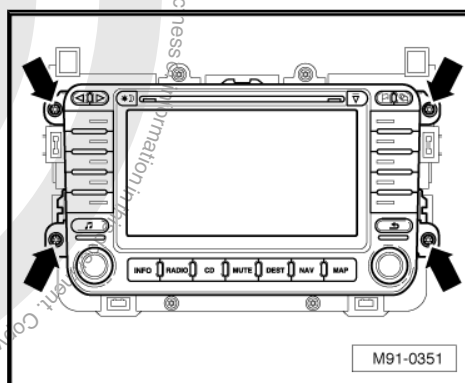
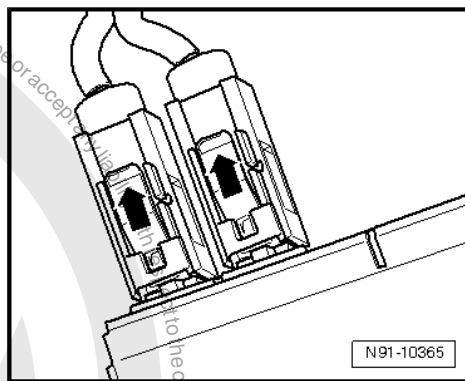


#### Note

*Never push on the display or the buttons on the Radio/Navigation Display Unit Control Module -J503- when installing it. The Radio/Navigation Display Unit Control Module -J503- could become damaged.*

- Install the screws -arrows- in the Radio/Navigation Display Unit Control Module -J503- .
- Deactivate the electronic anti-theft protection. Refer to [⇒ , page 55](#) .
- Check the coding for the Radio/Navigation Display Unit Control Module -J503- and code it again if necessary. Refer to [⇒ page 171](#) .

Tightening specification: 1.5 Nm.

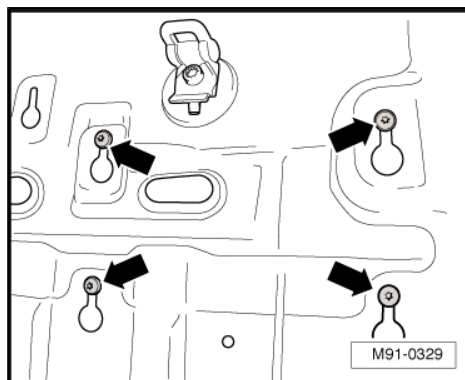


## 5.17 Satellite Radio -R146-

The satellite radio is under the rear shelf.

### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the rear shelf. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation (pillar and side trim).
- Remove the screws -arrows-.



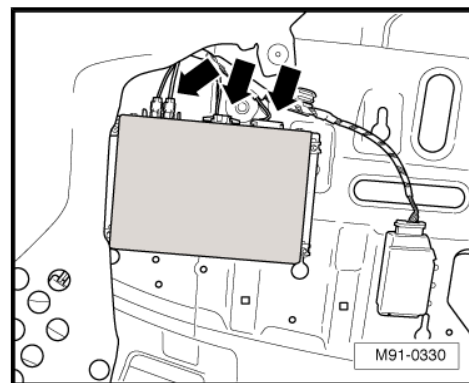


- Disconnect the connectors -arrows- from the satellite radio.

#### Installing

Install in reverse order of removal.

**Torque Specifications: 4 Nm**

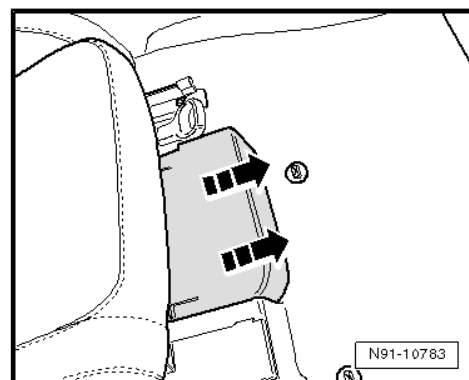


## 5.18 Satellite Radio -R146-

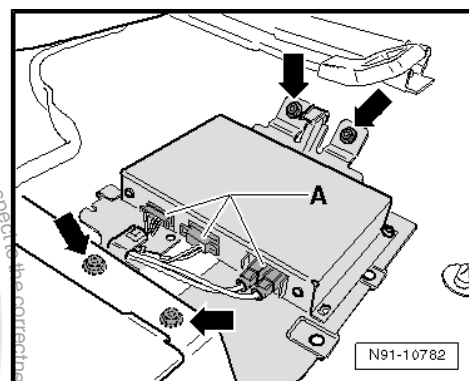
The satellite radio is under the front passenger seat.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the cover from the right front seat in the direction of the -arrow-.



- Disconnect connectors -A-.
  - Remove the bolts -arrows-.
- Remove the satellite radio and its mount.

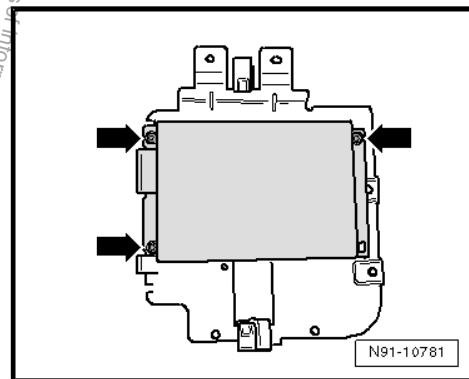


- Remove screws -arrows- while holding nuts under bracket in place - otherwise, these will turn with screws.

#### Installing

Install in reverse order of removal.

**Torque Specifications: 4 Nm**





## 5.19 Speakers

⇒ ["5.19.1 Bass, Front", page 232](#)

⇒ ["5.19.2 Bass, Rear", page 232](#)

⇒ ["5.19.3 Mid-Range, Front", page 233](#)

⇒ ["5.19.4 Treble, Front R20 / R22", page 234](#)

⇒ ["5.19.5 Treble Speaker, Rear", page 235](#)

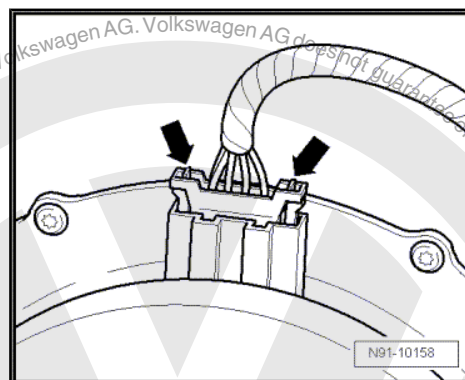
⇒ ["5.19.6 Frequency Crossovers", page 235](#)

### 5.19.1 Bass, Front

Removal and installation of left or right side speakers is identical.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove front door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Unlock and disconnect the connector -arrows-.

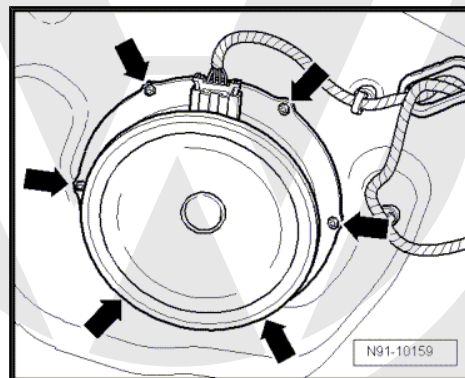


- Drill out rivets -arrows- and remove speaker.



#### Note

- ♦ Always remove any shavings resulting from the drilling, otherwise they may cause corrosion damage later.
- ♦ If paint on door frame is damaged during drilling, touch-up immediately.



#### Installing

- There are special blind rivets for installing the new speaker. Refer to Electronic Parts Catalog (ETKA).

Install in reverse order of removal.

### 5.19.2 Bass, Rear

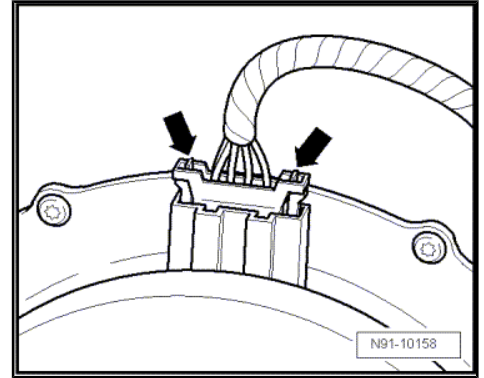
Removal and installation of left or right side speakers is identical.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the rear door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .



- Unlock and disconnect the connector -arrows-.

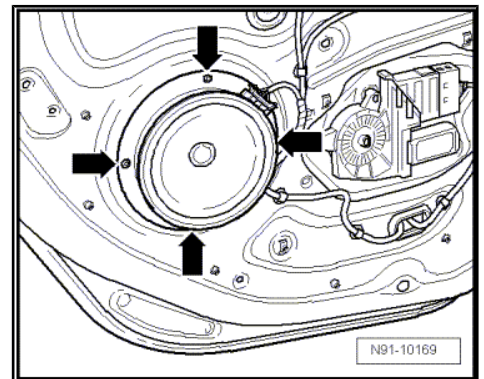


- Drill out rivets -arrows- and remove speaker.



#### Note

- ◆ Always remove any shavings resulting from the drilling, otherwise they may cause corrosion damage later.
- ◆ If paint on door frame is damaged during drilling, touch-up immediately.



#### Installing

- There are special blind rivets for installing the new speaker. Refer to Electronic Parts Catalog (ETKA).

Install in reverse order of removal.

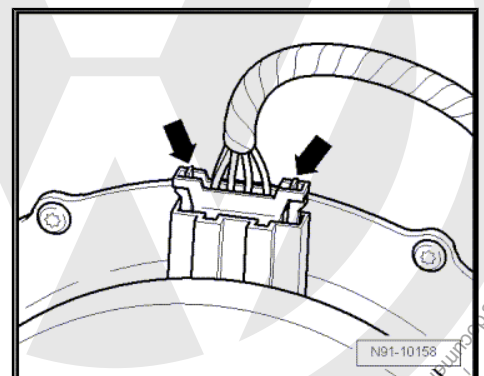
### 5.19.3 Mid-Range, Front

The right front midrange speaker -R104- / left front midrange speaker -R103- are attached to the back of the door trim panel.

Removal and installation of left or right side speakers is identical.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove front door trim panel. Refer to ➔ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Unlock and disconnect the connector -arrows-.







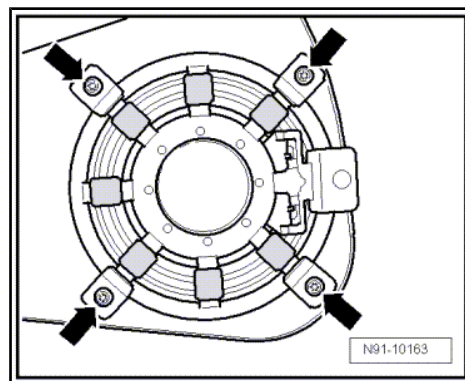
- Remove the screws -arrows- and remove the speaker.

### Installing

Install in reverse order of removal.

### Tightening Specifications

- ♦ Refer to  
⇒ ["2.29.6 Speaker System Component Location Overview",  
page 153](#) .



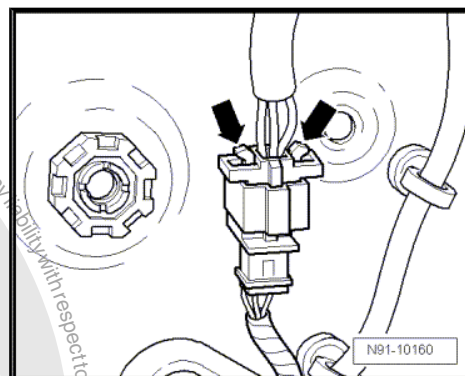
## 5.19.4 Treble, Front -R20- / -R22-

The Left Front Treble Speaker -R20- / Right Front Treble Speaker -R22- are installed in each front door inside the mirror triangle.

Removing and installing on the left and right sides is identical.

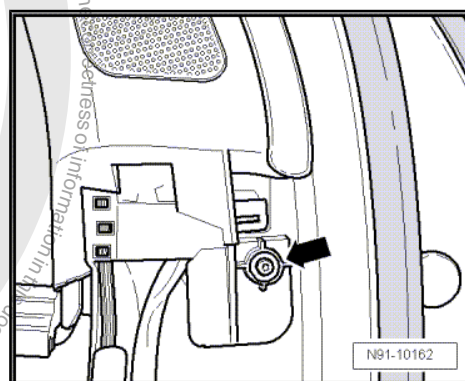
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the front door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect the connector -arrows- in the wire to the speaker.



Remove the bolts -arrow-.

Unclip the trim and the speaker together.







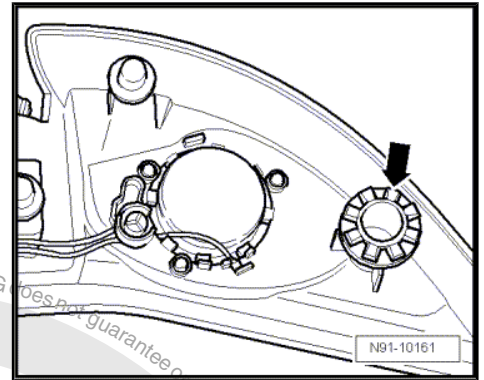
- If the plastic clip -arrow- remains on the trim, remove it and insert it into the door.

Otherwise trim of mirror triangle can no longer be installed correctly.

Speaker can only be replaced in conjunction with trim of mirror triangle.

#### Installing

Install in reverse order of removal.



### 5.19.5 Treble Speaker, Rear

The right rear treble speaker -R16- / left rear treble speaker -R14- are the back of the door trim panel.

The treble speaker and speaker panel are a single component.

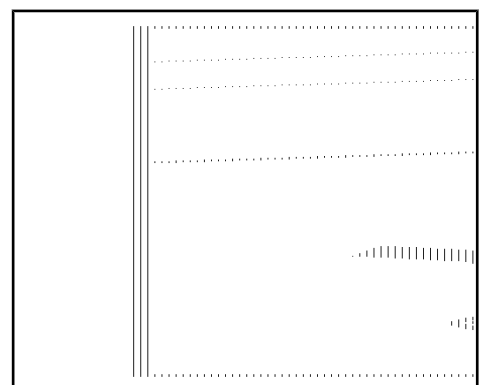
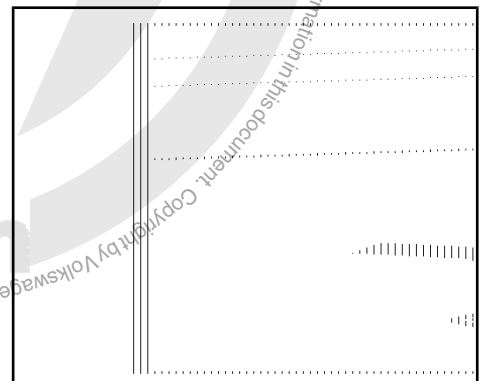
Removal and installation of left or right side speakers is identical.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove rear door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Disconnect the connector.
- Cut off the welded plastic part -arrows- on the speaker trim.
- Remove the trim and speaker from the door trim panel.

#### Installing

- Insert speaker panel together with speaker into door trim.



- Heat-seal the plastic clips using a soldering iron -arrows-.

Install in reverse order of removal.

### 5.19.6 Frequency Crossovers

The left frequency crossover -R18- / right frequency crossover -R19- are inside the door trim panels between the left front bass speaker -R21- / right front bass speaker -R23- and the driver door control module -J386- / front passenger door control module -J387- .



Removal and installation of left or right side speakers is identical.

#### Removal

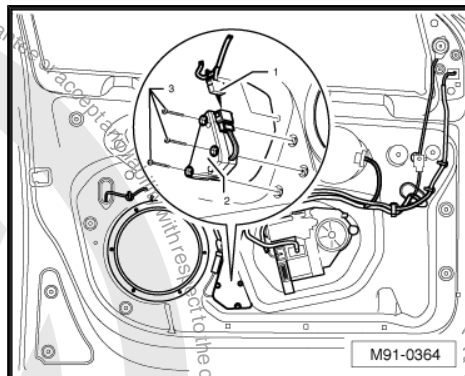
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove front door trim panel. Refer to ➤ Body Interior; Rep. Gr. 70 ; Removal and Installation
- Disconnect the connector -1-.
- Remove the screws -3- and remove the frequency crossover -2-.

#### Installation

Install in reverse order of removal.

#### Tightening Specifications

- ♦ Refer to  
⇒ [“2.29.6 Speaker System Component Location Overview”, page 153](#).



## 5.20 Telephone System Components

⇒ [“5.20.1 Telephone Baseplate R126 , through 06.06”, page 236](#)

⇒ [“5.20.2 Telephone Baseplate R126 , from 07.06”, page 237](#)

⇒ [“5.20.3 Telephone Transceiver R36 , through 06.06”, page 238](#)

⇒ [“5.20.4 Telephone Transceiver R36 , from 07.06”, page 238](#)

⇒ [“5.20.5 Telephone Microphone R38 ”, page 239](#)

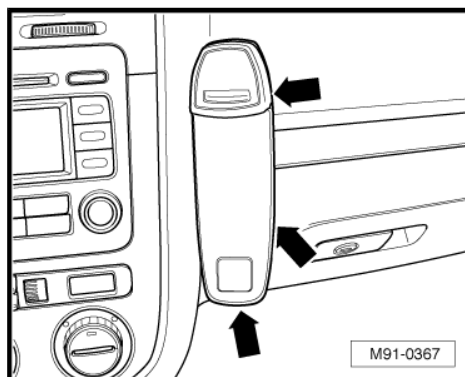
⇒ [“5.20.6 Cellular Telephone Preparation Control Head E508 ”, page 240](#)

⇒ [“5.20.7 Cell Phone Operating Electronics Control Module J412 , UMI”, page 240](#)

### 5.20.1 Telephone Baseplate -R126- , through 06.06

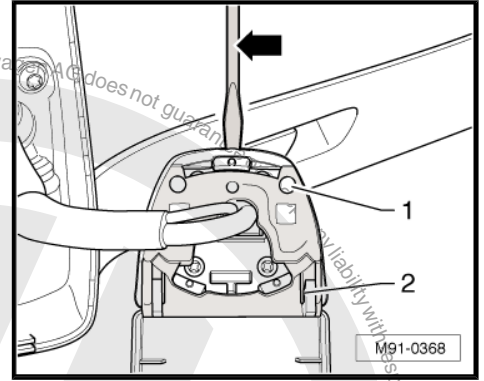
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the cell phone -R54- from the telephone baseplate.
- Unclip the cover -arrows- off the telephone baseplate.





- Pry the contact plate -1- off the base mount -2- with a screw-driver -arrow-.



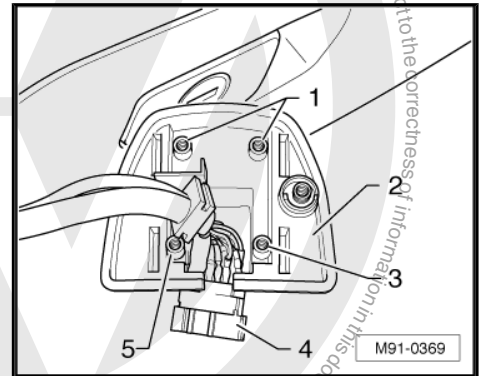
- Remove the screws -1-, -3- and -5- from the contact plate -2-.
- Remove the wiring harness -4-.

#### Installing

Install in reverse order of removal.

- Make sure the counterholder inside the instrument panel does not fall down when attaching the telephone baseplate to the instrument panel.

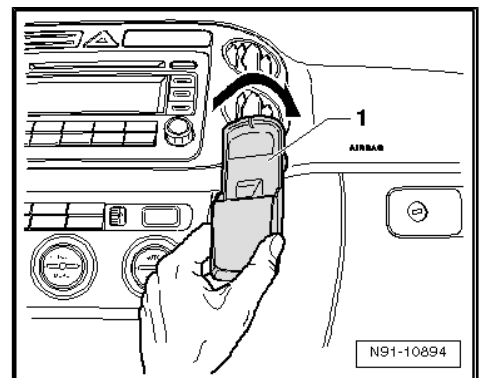
**Torque Specifications: 2 Nm**



### 5.20.2 Telephone Baseplate -R126- , from 07.06

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the cell phone -R54- from the telephone baseplate.
- Turn the telephone baseplate -1- clockwise -arrow- and loosen the bracket.

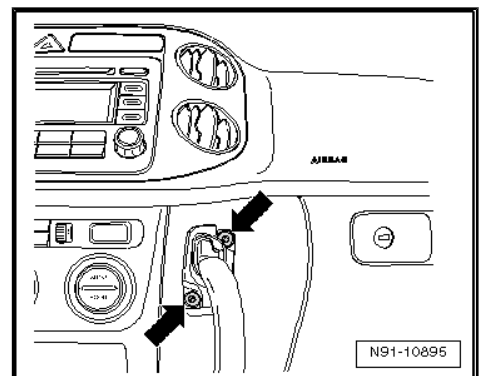


- Remove the screws -arrows-.
- Remove the wiring harness.
- Disconnect the connector.

#### Installing

Install in reverse order of removal.

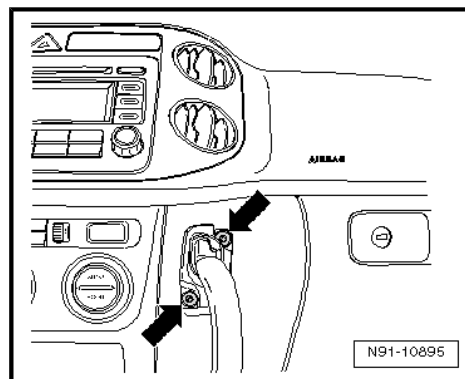
- Connect connector and guide wiring harness back into instrument panel.





- Attach the telephone baseplate mount -arrows-.
- Clip the telephone baseplate to the mount.

**Torque Specifications: 2 Nm**



### 5.20.3 Telephone Transceiver -R36- , through 06.06

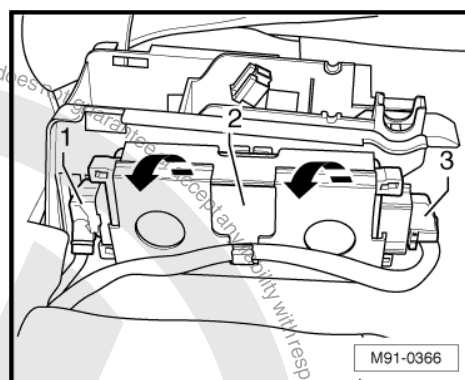
The telephone transceiver is installed under front right seat.

#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the cell phone -R54- from the telephone baseplate - R126- .
- Remove the right front seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Removal and Installation .
- Pull up the carpet near the connector station. The telephone transceiver will be underneath it.
- Unclip both retainers -arrows- and move the flap downward.
- Remove the telephone transceiver -2- with the wires still connected.
- Disconnect the connectors -1- and -3-.

#### Installing

Install in reverse order of removal.



### 5.20.4 Telephone Transceiver -R36- , from 07.06

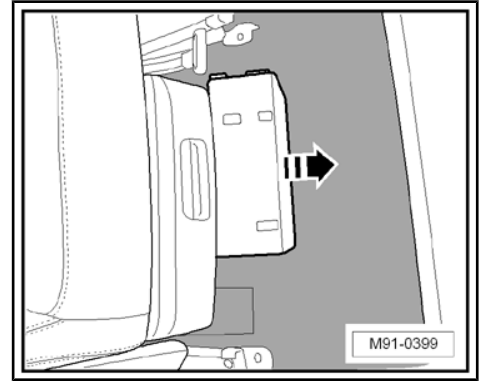
The telephone transceiver is installed under front right seat.

#### Removing

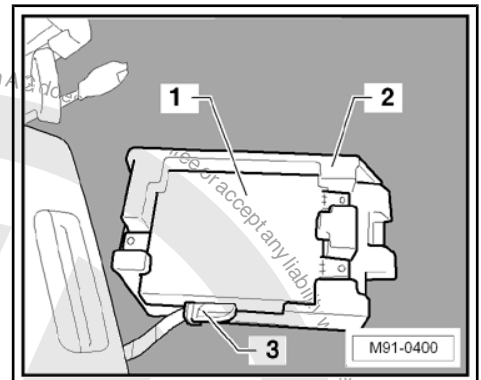
- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the cell phone -R54- from the telephone baseplate - R126- .
- Move the right front seat into its highest position and then move it all the way back.



- Push the foam insert forward in the direction of the -arrow-.
- Turn over the foam insert.



- Pry the telephone transceiver -1- out of the foam insert -2-.
- Disconnect the connector -3- from the telephone transceiver -1-.



### Installing

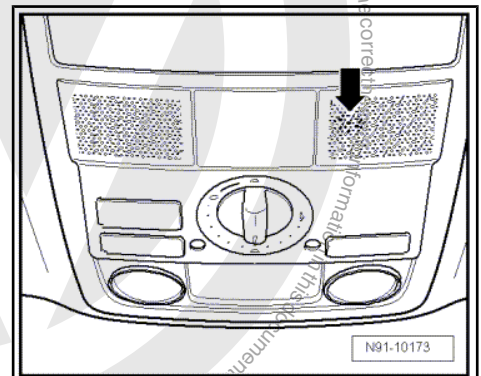
Install in reverse order of removal.

## 5.20.5 Telephone Microphone -R38-

The telephone microphone is located inside the front interior lamp -W1- -arrow-.

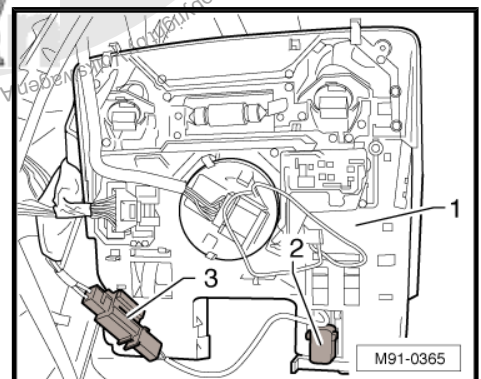
### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the front interior lamp. Refer to ⇒ Electrical Equipment; Rep. Gr. 96 ; Removal and Installation .



- Release and disconnect electrical connector -3-.

The telephone microphone is clipped inside the front interior lamp -1- by three hooks.

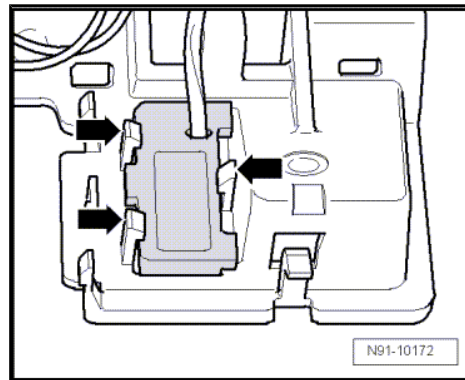




- Press three hooks -arrows- and remove the telephone microphone.

#### Installing

Install in reverse order of removal.

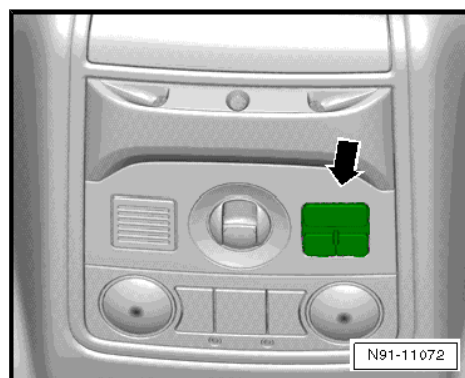


### 5.20.6 Cellular Telephone Preparation Control Head -E508-

Installed location of cellular telephone preparation control head -arrow-.

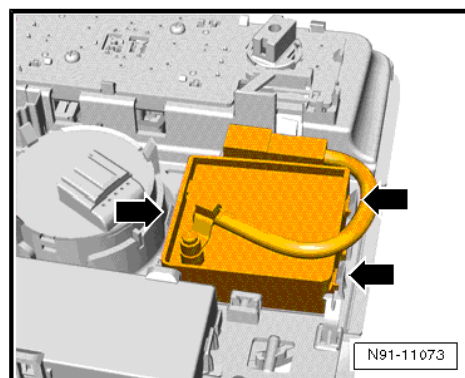
#### Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Remove the front interior lamp -W1- . Refer to ⇒ Electrical Equipment; Rep. Gr. 96 ; Removal and Installation .
- Open the three hooks -arrows- and remove the cell phone preparation control head.
- Disconnect the connector from the cellular telephone preparation control head.



#### Installing

Install in reverse order of removal.



### 5.20.7 Cell Phone Operating Electronics Control Module -J412- , UMI

The Telephone Transceiver -R36- and the Multimedia System Control Module -J650- are one unit. The functions are combined in one device ( Cell Phone Operating Electronics Control Module -J412- ).

#### Component location

- ◆ in center console
- ◆ in the glove compartment

It is removed and installed using the same procedure as the Multimedia System Control Module -J650- . Refer to ⇒ ["5.13 Multimedia System Control Module J650 ", page 193](#) .

### 5.21 USB Connection Baseplate -R193-

#### Special tools and workshop equipment required

- ◆ Radio Removal Tool -3316-

The USB connection baseplate is located inside the center armrest.

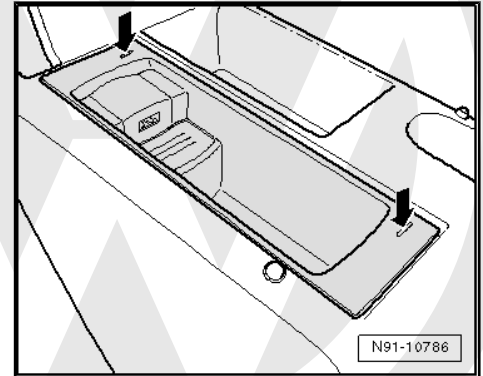




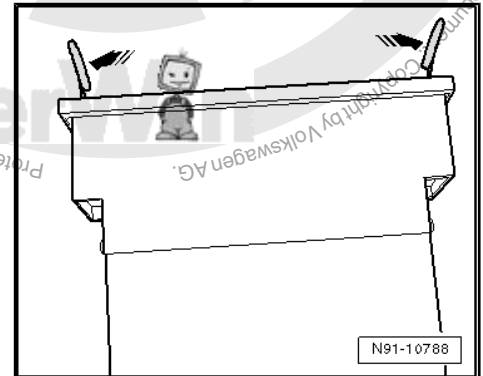
## Removing

- Switch off the ignition and all electrical consumers and remove the ignition key.
- Open the center armrest.
- Remove any data storage devices and their wire connections.
- Insert the -3316- into the slots -arrows- on the USB connection baseplate.

The USB connection baseplate is illustrated as removed for purposes of clarity.



- Press the -3316- apart in the direction of the -arrow-. Remove the USB connection baseplate from the center armrest using -3316- .
- Disconnect the connector from the USB connection baseplate.

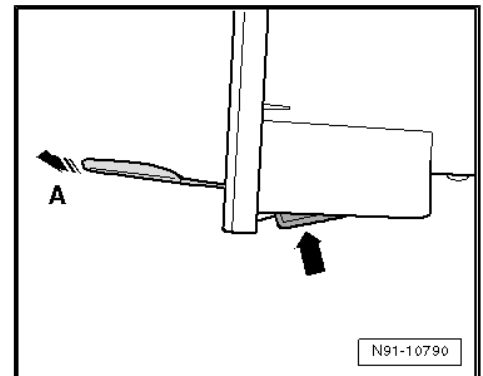


- Press the spring on the USB connection baseplate in the direction of the -arrow- and, at the same time, remove the -3316- in the direction of -arrow A-.

## Installing

- Insert the USB connection baseplate into the center armrest. The USB connection must be in the back.

Install in reverse order of removal.



## 5.22 Vehicle GPS Control Module

The Vehicle Positioning System Control Module -J895- is located inside the luggage compartment, on the left side and in the rear.

### Removing

- Turn off the ignition and all electrical consumers and remove the ignition key.
- Remove the luggage compartment left trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .





- Drill out the shear bolts -2- and remove the Vehicle Positioning System Control Module -J895- -1- with the bracket -4-.



#### Caution

- ◆ *By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!*

New shear bolts will be needed for installation later. Refer to the Parts Catalog.

- Release and disconnect the connectors -3- from the Vehicle Positioning System Control Module -J895- -1-.

#### Removing the bracket

- Remove the bolts -3- and remove the Vehicle Positioning System Control Module -J895- -1- from the bracket -2-.

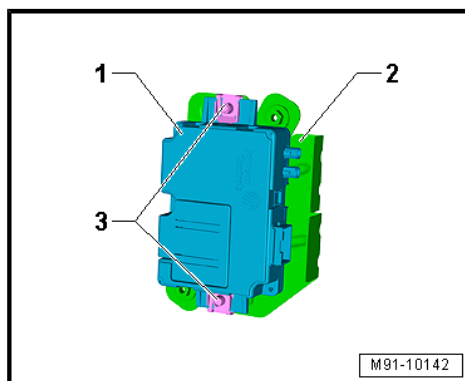
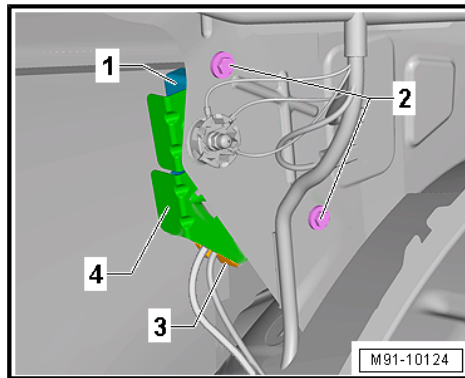
#### Installing

Install in reverse order of removal. Note the following:

- Tighten the new shear bolts until the bolt heads shear off.

#### Torque Specifications:

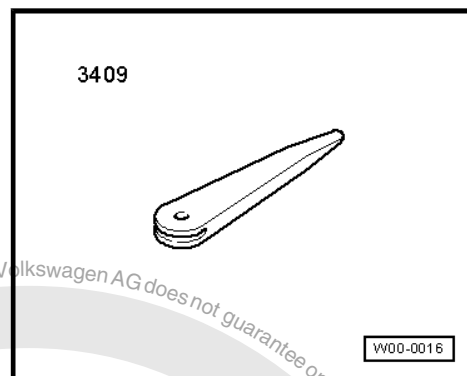
- ◆ Bolt -3-: 2.5 Nm



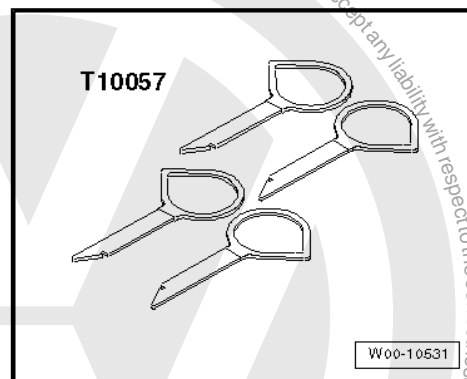


## 6 Special Tools

Trim Removal Wedge -3409-



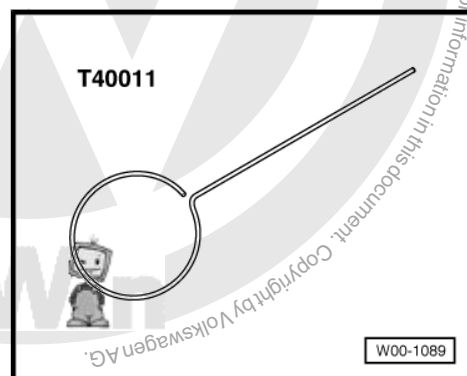
Radio Removal Tool -T10057-



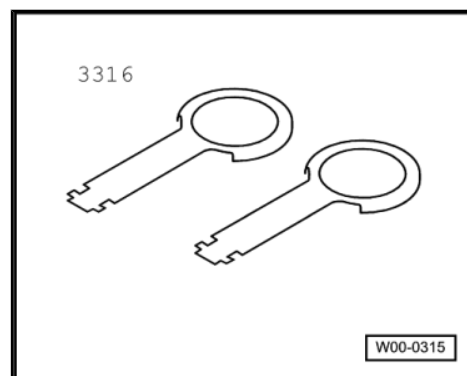
Locking Pin -T40011-

Hand-Held Multimeter -VAG 1526C-

Connector Test Kit -VAG 1594C-



Radio Removal Tool -VAS 3316-



Edition 10.08.2013

# Cautions & Warnings

**Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.**

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

## Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

## Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

**I have read and I understand these Cautions and Warnings.**

